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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

UNITED STATES OF AMERICA Plaintiff , v. Akzo Coatings, et al Defendants.	)	CIVIL ACTION NO. 89 C 7748

TECHNICAL SUPPORT SECTION
DOCUMENT

CONSENT DECREE

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CONSENT DECREE

Pursuant to Section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA"), 42 U.S.C. §9605, the United States Environmental Protection Agency ("U.S. EPA") placed the Acme Solvents Reclaiming, Inc. Site in Winnebago County, Illinois (the "Facility" as specifically defined in Paragraph 4 of this Consent Decree), on the National Priorities List, which is set forth at 40 CFR Part 300, Appendix B, by publication in the Federal Register on September 8, 1983, 48 Fed. Reg. 40673 (September 8, 1983).

In response to a release or a substantial threat of a release of a hazardous substance at or from the Facility, the Illinois Environmental Protection Agency ("IEPA") in June of 1983 commenced a Remedial Investigation and Feasibility Study ("RIFS") pursuant to 40 CFR 300.68 for the Facility.

IEPA completed a Remedial Investigation ("RI") Report in September of 1984, and completed a Feasibility Study ("FS") Report in February of 1985.

The FS Report contained proposed alternatives for remedial action at the Facility.

A Record of Decision setting forth the preferred remedial action plan for addressing remediation of contaminated soils and further study of contaminated groundwater was signed by the Regional Administrator on September 27, 1985, in concurrence with IEPA.

On September 29, 1986, U.S. EPA, IEPA, and certain potentially responsible parties ("PRPs") entered into an Administrative Order by Consent for the performance of a Supplemental Technical Investigation (STI) to provide additional information regarding the source, nature and extent of groundwater contamination and methods for groundwater remediation.

The United States filed an amended complaint in the Northern District of Illinois, Eastern Division, case number 89 C 7748 on October 16, 1989, seeking a declaration under Section 107 of CERCLA, 42 U.S.C. Section 9607 that sixteen potentially responsible parties ("PRPs") were responsible for both the payment of costs incurred by the U.S. EPA in responding to the release or a substantial threat of release of hazardous substances at or from the Facility and the reimbursement of all future costs arising from response actions at the site.

The STI was completed on May 29, 1990. An Engineering Evaluation/Cost Analysis of remedial alternatives for tanks, soils, and sludges was completed on August 6, 1990. A Remedial Action Alternatives Evaluation addressing all other site contamination was completed on September 20, 1990.

On October 5, 1990, U.S. EPA, pursuant to Section 117 of CERCLA, 42 U.S.C. §9617, published notice of the completion of the STI and of the proposed plan for remedial action, in a major local newspaper of general circulation and provided opportunity for public comment to be submitted in writing to U.S. EPA by

November 5, 1990 or orally at a public meeting held in the City of Rockford, Illinois, on October 18, 1990.

U.S. EPA, pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, has kept a transcript of the public meeting and has made this transcript available to the public as part of the administrative record located at U.S. EPA, Region V, 230 South Dearborn Street, Chicago, Illinois and at the Rockford Public Library, 215 North Wyman Street, Rockford, Illinois.

In February 1991, U.S. EPA, pursuant to Section 122 of CERCLA, 42 U.S.C. §9622, notified certain parties that U.S. EPA had determined that each party so notified was a potentially responsible party ("PRP") regarding the proposed remedial action at the Facility.

In accordance with Section 121(f)(1)(F) of CERCLA, 42 U.S.C. §9621(f)(1)(F), U.S. EPA notified the State of Illinois on February 14, 1991, of negotiations with PRPs regarding the scope of the remedial design and remedial action for the Facility, and U.S. EPA has provided the State with an opportunity to participate in such negotiations and be a party to any settlement;

Pursuant to Section 122(j) of CERCLA, 42 U.S.C. §9622(j), on February 14, 1991, U.S. EPA notified the Federal natural resource trustee of negotiations with PRPs on the subject of addressing the release or threatened release of hazardous substances at the Facility;

Certain persons have provided comments on U.S. EPA's proposed plan for remedial action, and to such comments U.S. EPA provided a summary of responses, all of which have been included in the administrative record.

Considering the proposed plan for remedial action and the public comments received, U.S. EPA has reached a decision on a final remedial action plan, which is embodied in a document called a Record of Decision ("ROD") signed by the Regional Administrator on December 31, 1990 (attached as Appendix 1 hereto), to which the State has given its concurrence, and which includes a discussion of U.S. EPA's reasons for adopting the final plan and for any significant changes from the proposed remedial action plan.

U.S. EPA, pursuant to Section 117(b) of CERCLA, 42 U.S.C. §9617(b), has provided public notice of adoption of the final remedial action plan set forth in the ROD, including notice of the ROD's availability to the public for review in the same locations as the administrative record referred to above;

Pursuant to Section 117(d) of CERCLA, 42 U.S.C. §9617(d), the notice has been published in a major local newspaper of general circulation, and the notice includes an explanation of any significant changes from the proposed remedial action plan and the reasons for such changes;

Pursuant to Section 121(d)(1) of CERCLA, 42 U.S.C. §9621(d)(1), U.S. EPA and Settling Defendants ("the Parties") believe that the remedial action plan adopted by U.S.

EPA will attain a degree of cleanup of hazardous substances, pollutants and contaminants released into the environment and of control of further release which, at a minimum, assures protection of human health and the environment at the Facility.

The Parties believe the remedial action plan adopted by U.S. EPA will provide a level or standard of control for such hazardous substances, pollutants, or contaminants which at least attains legally applicable or relevant and appropriate standards, requirements, criteria, or limitations under Federal environmental law or State environmental or facility siting law in accordance with Section 121(d)(2) of CERCLA, 42 U.S.C. §9621(d)(2), and that the remedial action plan is in accordance with Section 121 of CERCLA, 42 U.S.C. §9621, and with the National Contingency Plan ("NCP"), 40 CFR Part 300.

Settling Defendants agree to implement the final remedial action plan adopted by U.S. EPA in the ROD as set forth in Appendix 1 to this Consent Decree and incorporated by reference into this Decree, and U.S. EPA has determined that the work required under the Consent Decree will be done properly by Settling Defendants and that Settling Defendants are qualified to implement the remedial action plan contained in the ROD.

The Parties recognize, and intend to further hereby, the public interest in the expedition of the cleanup of the Facility and in avoiding prolonged and complicated litigation between U.S. EPA and the Settling Defendants.

NOW, THEREFORE, it is hereby Ordered, Adjudged and Decreed:

I. PURPOSE OF DECREE

1. The purpose of this Consent Decree is to provide for implementation by Settling Defendants of the final remedial design and remedial action for the Facility selected by U.S. EPA, as set forth in the Record of Decision attached as Appendix 1, and to provide for payment of certain response costs incurred and to be incurred by the United States for the Facility.

II. JURISDICTION

2. This Court has jurisdiction over the subject matter herein pursuant to 28 U.S.C. §§1331(a) and 1345, and 42 U.S.C. §§9613(b) and 9622(d)(1)(A), and over the parties consenting hereto. Settling Defendants hereby waive service of the summons and complaint in this action.

III. PARTIES BOUND

3. This Consent Decree applies to and is binding upon the undersigned parties and their agents, successors and assigns. The undersigned representative of each party to this Consent Decree certifies that he or she is fully authorized by the party or parties whom he or she represents to enter into the terms and conditions of the Consent Decree and to execute and legally bind that party to it. Settling Defendants shall provide a copy of this Consent Decree to the contractor(s) hired to perform the work required by this Consent Decree and shall require the contractor(s) to provide written notice of the decree to any subcontractor retained to perform any part of the work.

IV. DEFINITIONS

4. Whenever the following terms are used in this Consent Decree and the Appendices attached hereto, the following definitions shall apply:

"Cleanup Standards" means the requirements respecting the degree of cleanup of groundwater, soil, air or other environmental media that must be achieved by the remedial action, as set forth in the ROD, in paragraph 12 of this Decree, and on pages 1-9 of the SOW.

"Consent Decree" means this Decree and all appendices hereto. In the event of conflict between this Decree and any appendix, the Decree shall control.

"Contractor" means the company or companies retained by or on behalf of Settling Defendants to undertake and complete the work required by this Consent Decree. Each contractor and subcontractor shall be qualified to do those portions of the work for which it is retained. Each contractor and subcontractor shall be deemed to be related by contract to each Settling Defendant within the meaning of 42 U.S.C. §9607(b).

"Facility" refers to the location near Morristown in Winnebago County, State of Illinois, where treatment, storage, disposal or other placement of hazardous substances was conducted by Acme Solvents Reclaiming, Inc., or otherwise came to be located, as shown on Figure 1 of the ROD.

"Hazardous substance" shall have the meaning provided in Section 101(14) of CERCLA, 42 U.S.C. §9601(14).

"National Contingency Plan" or "NCP" means the term used in Section 105 of CERCLA, 42 U.S.C. §9605 and is promulgated at 40 CFR Part 300.

"Oversight Costs" means any costs not inconsistent with the National Contingency Plan incurred by U.S. EPA in monitoring the compliance of the Settling Defendants with this Consent Decree, including but not limited to payroll and other direct costs, indirect and overhead costs, sampling and laboratory costs, travel, contractor costs and costs of review of the work performed pursuant to this Consent Decree.

"Parties" means the United States of America and the Settling Defendants.

"RD/RA Work Plan" means the plan for the design, construction, operation, maintenance, and monitoring of the remedial action for the Facility, as described in paragraph 13(a).

"Record of Decision" or "ROD" means the administrative Record of Decision issued by U.S. EPA on December 31, 1990, setting forth the remedial action requirements for the Facility, attached as Appendix 1 hereto.

"Remedial Project Manager" or "RPM" means the person designated by U.S. EPA to coordinate, monitor or direct remedial activities at the Facility pursuant to 40 CFR 300.33 and Section XII hereof.

"Response Costs" means any costs not inconsistent with the National Contingency Plan incurred by the United States pursuant to 42 U.S.C. §§9601 et seq.

"Scope of Work" or "SOW" means the plan, set forth as Appendix 2 to this Decree, for implementation of the remedial design and remedial action at the Facility pursuant to the Record of Decision, and any subsequent amendments of Appendix 2 pursuant to the provisions of this Decree.

"Settling Defendants" means those parties other than the United States of America who sign this Consent Decree.

"State" means the State of Illinois; "IEPA" means the Illinois Environmental Protection Agency.

"United States" means the United States of America.

"U.S. EPA" means the United States Environmental Protection Agency.

"U.S. DOJ" means the United States Department of Justice.

"Work" means the design, construction and implementation, in accordance with this Consent Decree, of the tasks described in the ROD, this Decree, the Scope of Work, the Work Plan, and any other plans or schedules submitted by the Settling Defendants and approved by U.S. EPA pursuant to this Decree or the SOW. The following are the major components of the Remedial Action:

Installation of fencing at the Site;

Delineation of the extent of soil, sludge, and groundwater contamination exceeding cleanup standards;

Treatment of the contaminated soils and sludges by low temperature thermal stripping followed, if necessary, by solidification;

Treatment of the contents of two on-site tanks by off-site incineration and disposal of the tanks;

Provision of an alternate water supply to affected residences;

Extraction and treatment of groundwater;

Treatment of soil (and bedrock, if determined by U.S. EPA to be feasible) by vapor extraction;

Construction of a RCRA subtitle C compliant cap or soil cover;

Monitoring of groundwater and air emissions; and

Operation and maintenance of all remedial action components.

V. GENERAL PROVISIONS

5. Commitment of Settling Defendants to Perform RD/RA.

a. Settling Defendants agree jointly and severally to finance and perform the Work as defined in paragraph 4 hereof.

b. The Work shall be completed in accordance with all requirements of this Decree, the ROD, the SOW, the RD/RA Work Plan and all other plans or schedules submitted by the Settling Defendants and approved by U.S. EPA under this Decree. All such documents shall be deemed to be incorporated in this Decree. The procedures for submission and approval of plans are set forth in Section VI below.

6. Compliance with Applicable Laws; Permits and Approvals.

a. All activities undertaken by the Settling Defendants pursuant to this Consent Decree shall be undertaken in

accordance with the requirements of all applicable federal and state laws, regulations and permits, as required by CERCLA.

b. Pursuant to Section 121(e)(1) of CERCLA, no federal, state, or local permits are required for work conducted entirely on the Facility. Settling Defendants shall obtain all permits or approvals necessary for work off the Facility under applicable federal, state or local laws and shall submit timely applications and requests for any such permits and approvals.

c. The standards and provisions of Section XIII hereof describing Force Majeure shall govern delays in obtaining permits required for the Work and also the denial of any such permits, provided that Settling Defendants have made timely and complete application for any such permits.

d. Settling Defendants shall include in all contracts entered into for the Work required under this Consent Decree and shall require all contractors to include in all contracts with subcontractors, provisions stating that such contractors or subcontractors, including their agents and employees, shall perform all activities required by such contracts or subcontracts in compliance with all applicable laws and regulations.

e. This Consent Decree is not a permit issued pursuant to any federal or state statute or regulation.

7. Formal Approval Required. No informal advice, guidance, suggestions or comments by representatives of the United States or the State on plans, reports or other documents submitted by the Settling Defendants shall be construed as

relieving them from obtaining any formal approvals, permits or other authorizations required by law or by this Decree. Further, no advice, guidance, suggestions or comments by such government representatives with respect to any submission by the Settling Defendants shall be construed so as to relieve them of their obligations under this Decree or to transfer any of their liability or obligations under this Decree to any other party or person.

8. Computation of Time. Unless otherwise provided, dates and time periods specified in or under this Decree are in calendar days. If the date for submission of any item or notification required by this Decree falls upon a weekend or state or federal holiday, the time period for submission of that item or notification is extended to the next working day following the weekend or holiday. Submission shall be deemed accomplished when the item is delivered or mailed to the required party or parties.

9. Institutional Controls

The U.S. EPA has determined that the following institutional controls are necessary to effectuate the remedial action for the facility and to protect the public health or welfare or the environment: a deed notification stating that groundwater is contaminated above MCLs, and a deed notification and access restrictions designed to protect the RCRA cap. The deed notification for groundwater may be removed upon U.S. EPA's

issuance of a Certification of Completion of Remedial Action at the site.

VI. PERFORMANCE OF THE WORK BY SETTLING DEFENDANTS

10. Selection of Architect/Engineer and Contractor(s).

a. Architect/Engineer. All remedial design work to be performed by Settling Defendants pursuant to this Consent Decree shall be under the direction and supervision of a qualified professional architect or engineer. Within ten (10) days after the lodging of this Consent Decree, Settling Defendants shall notify U.S. EPA, in writing, of the name, title, and qualifications of the proposed architect or engineer to serve as Project Coordinator. Selection of any such Project Coordinator shall be subject to written approval by U.S. EPA. U.S. EPA shall provide written notice of approval or disapproval within sixty (60) days of receipt of Settling Defendant's notification.

b. Contractor. All remedial action work to be performed by the Settling Defendants pursuant to this Consent Decree shall be under the direction and supervision of a qualified contractor. As soon as possible after entry of the Decree and at least thirty (30) days prior to the date upon which initiation of remedial action work is required under this Decree, the Settling Defendants shall notify U.S. EPA, in writing, of the name, title, and qualifications of the proposed engineer, consultant, or contractor, and the names of principal contractors and subcontractors proposed to be used in carrying out the Work

to be performed pursuant to this Consent Decree. Selection of any such engineer, consultant, or contractor and/or subcontractor shall be subject to written approval by the U.S. EPA. U.S. EPA shall provide written notice of approval or disapproval within sixty (60) days of receipt of Settling Defendants' notification.

c. Disapproval of Architect/Engineer or Contractor. If U.S. EPA disapproves in writing of the initial or subsequent selection of an architect, engineer, consultant, or contractor, Settling Defendants shall submit the name, title, and qualifications of an alternate architect, engineer, consultant, or contractor to U.S. EPA within 30 days of receipt of the notice of disapproval.

d. Replacement of Architect/Engineer or Contractor. If at any time Settling Defendants propose to change an architect, engineer, consultant or contractor previously approved by U.S. EPA, they shall give written notice to U.S. EPA of the name, title and qualifications of the proposed new architect, engineer or contractor. Such architect, engineer or contractor shall not perform any Work until written approval by U.S. EPA has been given. U.S. EPA shall provide written notice of approval or disapproval within sixty (60) days of receipt of Settling Defendants' notification.

11. Scope of Work. Appendix 2 to this Consent Decree provides a Scope of Work ("SOW") for the completion of remedial design and remedial action at the Facility. This Scope of Work

is incorporated into and made an enforceable part of this Consent Decree.

12. Cleanup and Performance Standards. The Work performed under this Consent Decree shall meet the following Cleanup and Performance Standards:

a. Cleanup Standards

1. Soils and sludges with a photoionization device (PID) reading in excess of 10 ppm, a concentration of PCBs in excess of 10 mg/kg, or metals concentrations in excess of the RCRA TCLP standards shall be excavated and treated, as provided in Sections II A and B of the SOW.

2. The groundwater extraction and treatment system shall be operated such that the following are met: the groundwater cleanup standards set forth in Table 11 of the ROD; any MCL or non-zero MCLG; and for contaminants without an MCL or MCLG, a cumulative carcinogenic risk of 1×10^{-5} and a cumulative Hazard Index of 1 (for non-carcinogens) as calculated using the methods set forth in U.S. EPA's Risk Assessment Guidance for Superfund ("RAGS"), and as provided in Section II G of the SOW.

3. VOC-contaminated soils remaining after excavation and low temperature thermal stripping (LTTS) treatment shall be treated by soil vapor extraction until those

standards set forth in Table 9 of the ROD have been achieved, as provided in Section II H of the SOW.

4. Soils remaining after completion of excavation and treatment by LTTS and treatment by soil vapor extraction with a bis(2ethylhexyl)phthalate concentration in excess of 58 mg/kg, a PCB concentration in excess of 1 mg/kg, a lead concentration in excess of 500 mg/kg, or VOCs in excess of the cleanup standards set forth in Table 9 of the ROD shall be consolidated and capped, as provided in Section II I of the SOW.

b. Performance Standards

1. Residuals from the LTTS process shall, at a minimum, meet RCRA Treatability Variance standards for soil and debris, as set forth in U.S. EPA OSWER Directive No. 9347.3-06FS and Table 7 of the ROD. If LTTS residuals are to be landfilled on-site, such residuals must also meet the VOC Cleanup Standards set forth in Table 9 of the ROD and PCBs shall be treated such that the PCB concentrations in soils do not exceed 10 mg/kg. All materials resulting from the treatment process shall be handled in accordance with state and Federal RCRA regulations, as provided in Section II B of the SOW.

2. Tank contents shall be treated at an off-site, RCRA and TSCA permitted incinerator in compliance with

Federal, State and local regulations and CERCLA Section 121(d)(3). The tanks themselves shall be landfilled in a RCRA Subtitle C compliant landfill in compliance with Federal, State and local regulations and CERCLA Section 121(d)(3). Subject to U.S. EPA approval, alternative methods of decontaminating and disposing of the tanks may be used, as provided in Section II C of the SOW.

3. The selected source of water for the alternative water supply provided to those eligible locations shall not initially contain contaminants at levels exceeding a cumulative carcinogenic risk of 1×10^{-5}, and shall meet any and all Maximum Contaminant Levels (MCL) or non-zero Maximum Contaminant Level Goals (MCLG) set under the Safe Drinking Water Act. The method of calculation of cumulative carcinogenic risk is provided in RAGS and the Acme Solvents EA. Eligible locations are those locations where well water currently contains contaminants exceeding these standards and those additional locations existing at the time of the final design submittal which U.S. EPA believes may become contaminated in the future, as provided in Section II D of the SOW.

4. Groundwater shall be extracted and treated to meet all conditions and limitations imposed by U.S. EPA and/or IEPA on discharge of treated groundwater into surface waters. The groundwater extraction and

treatment system may be shut down only after three (3) consecutive years of attainment of the Cleanup Standards (or Alternate Cleanup Standards, as described below) and after receiving U.S. EPA approval. Notwithstanding such approval, if groundwater monitoring indicates that contaminant concentrations have increased above Cleanup Standards (or Alternate Cleanup Standards) after shutdown of the treatment system, the system shall be reactivated, as provided in Section II G of the SOW.

5. Soil shall be treated by soil vapor extraction (SVE) until soil sampling shows that Cleanup Standards have been attained in VOC contaminated soils. Cleanup Standards for bedrock vapor extraction (BVE) shall be established during the design phase. The bedrock gas shall be treated by BVE (if determined to be feasible by U.S. EPA) until such BVE Standards as U.S. EPA designates are attained. If, within three (3) years of shutdown of the SVE or BVE system, VOC concentrations increase over time to levels exceeding the Cleanup Standards, U.S. EPA may require reactivation of the soil or bedrock vapor extraction system, as provided in Section II H of the SOW.

6. The RCRA cap shall be designed and constructed in accordance with Federal and State regulations governing the construction of RCRA Subtitle C caps, and with U.S.

EPA's Technical Guidance Document, entitled "Final Covers on Hazardous Waste Landfills and Surface Impoundments" (EPA/530-SW-89-047), as provided in Section II I of the SOW.

7. At all times during the performance of the Remedial Action, Settling Defendants shall ensure that air emissions do not exceed a cumulative cancer risk of 1×10^{-5} at the nearest downwind residence and at Rockford Blacktop Quarry, using risk calculation methods set forth in RAGS. In addition, the air emissions shall not exceed any Federal, State, or local regulations. Residuals from air emissions control processes shall be treated or disposed of in accordance with RCRA hazardous waste regulations, as provided in Section II J of the SOW.

c. Alternate Cleanup Standards

1) If, after full operation of the groundwater extraction and treatment system for a period of at least five (5) years, and operation of the system following implementation of any and all modifications required by U.S. EPA for at least three (3) years, Settling Defendants believe that it is technically impracticable to achieve the Cleanup Standards set forth above, then Settling Defendants may petition to U.S. EPA to modify the Cleanup Standards, based on a demonstration, in accordance with the provisions of

Section 121(d)(4)(C) of CERCLA, that compliance with the Cleanup Standards is technically impracticable from an engineering perspective.

2. Settling Defendants' petition shall include: 1) a detailed justification setting forth the technical basis for the claim that it is technically impracticable from an engineering perspective to achieve each such Cleanup Standard, including, but not limited to, a demonstration that contaminant concentrations have not shown a statistically significant difference in a minimum of four (4) consecutive monitoring events, and insignificant contaminant mass removal is being achieved by the groundwater extraction and treatment system; 2) proposed Alternate Cleanup Standard(s) which shall reflect the lowest concentration of each contaminant that is technically practicable to attain from an engineering perspective; 3) a certification by Settling Defendants that all technically practicable measures to achieve the greatest possible reduction in concentration of each such contaminant have been implemented; and 4) a demonstration that the response action will attain a degree of cleanup of all contaminants and of control of further release which will ensure protection of human health and the environment, including an evaluation of whether

hydraulic containment is necessary after Alternate Cleanup Standards are achieved to prevent migration of contaminants exceeding Cleanup Standards.

3. Based on a review of the petition and any supporting information submitted by Settling Defendants, U.S. EPA shall determine whether to modify any of the Cleanup Standards set forth above after notice and a reasonable opportunity for the State, and the public, if necessary, to review and comment. If U.S. EPA grants the Settling Defendants' petition, in whole or in part, Settling Defendants shall meet the Alternate Cleanup Standards set by U.S. EPA. Such Alternate Cleanup Standards shall be made an enforceable part of this SOW and Consent Decree. Notwithstanding the approval of Alternate Cleanup Standards by U.S. EPA, such Alternate Cleanup Standards are subject to modification by U.S. EPA if monitoring data or technological improvements indicate at any time, that a greater degree of cleanup is technically practicable from an engineering perspective, and any such modifications shall also be made an enforceable part of this SOW and Consent Decree.

4. U.S. EPA's decisions and findings with respect to any petition under this subparagraph shall be deemed a determination regarding the adequacy and selection of the remedy for this Facility within the meaning of

Section 113(j) of CERCLA, 42 U.S.C. Section 9613(j), and shall be subject to the dispute resolution provisions under Section XIV of this Consent Decree.

5. If U.S. EPA grants any petition pursuant to this subparagraph, Settling Defendants shall thereafter achieve and maintain all Alternate Cleanup Standards established pursuant to this paragraph.

13. RD/RA Work Plan.

a. Within 60 days of the lodging of this Consent Decree, the Settling Defendants shall commence remedial design work by submitting to U.S. EPA and the State the RD/RA Work Plan which shall include the following:

(1) a site access and permitting plan;

(2) a quality assurance project plan;

(3) a sampling plan;

(4) a site safety plan;

(5) a pre-design studies plan;

(6) a schedule for submittal of the Remedial Design tasks, including:

(a) a schedule for submittal of all phases of the design plans and specifications;

(b) the groundwater monitoring plan;

(c) the operation and maintenance (O&M) plan;

(d) the construction QAPP; and

(e) the monitoring/O&M QAPP; and

(7) a schedule for Remedial Action Implementation, including:

(a) a schedule for bidding of the construction contract(s); and

(b) a schedule for construction inspections.

Settling Defendants shall not be required to pay any Oversight Costs for U.S. EPA's review of their work prior to entry of the decree under this paragraph, but following entry shall pay all such Oversight Costs pursuant to Section XVI hereof that accrued prior to entry.

b. All plans submitted shall be developed in conformance with the ROD, the SOW, U.S. EPA Superfund Remedial Design and Remedial Action Guidance and any additional guidance documents identified by U.S. EPA that are in effect at the time of plan submission. If an applicable U.S. EPA guidance document is changed or is issued which requires modification of plans under development, U.S. EPA may modify deadlines for submittal of such plans as U.S. EPA deems necessary to incorporate such guidance into the plan being developed.

c. All plans shall be subject to review, modification and approval by U.S. EPA in accordance with the procedures set forth in paragraph 14 below.

d. All approved plans shall be deemed incorporated into and made an enforceable part of this Consent Decree. All work shall be conducted in accordance with the National Contingency Plan, the U.S. EPA Superfund Remedial Design and

Remedial Action Guidance, and the requirements of this Consent Decree, including the standards, specifications and schedule contained in the RD/RA Work Plan.

14. Approval Procedures for Work Plans and Other Documents.

a. Upon review of each work plan or other document required to be submitted and approved by U.S. EPA pursuant to this Decree, the U.S. EPA Remedial Project Manager (the "RPM") shall notify Settling Defendants, in writing, that a document is (1) approved, (2) disapproved, (3) approved as modified by U.S. EPA to cure deficiencies, or (4) returned to Settling Defendants for modification. An explanation shall be provided for any disapproval or required modification.

b. Upon approval (including approval with modification) by U.S. EPA, Settling Defendants shall proceed to implement the work required.

c. In the event of partial U.S. EPA disapproval or return to Settling Defendants for modification, the Settling Defendants shall proceed to implement the work in any approved portions of the submission upon request by U.S. EPA, and shall submit a revised document to U.S. EPA curing the deficiencies within 21 calendar days of receipt of notice from U.S. EPA or such other time as may be agreed to by the parties.

d. Settling Defendants may submit any disapproval, return for modification, or conditions of approval to which they object, for dispute resolution pursuant to Section XIV hereof.

The provisions of Section XIV (Dispute Resolution) and Section XVII (Stipulated Penalties) shall govern the implementation of Work and accrual and payment of any stipulated penalties during dispute resolution. Implementation of non-deficient portions of the submission shall not relieve Settling Defendants of any liability for stipulated penalties under Section XVII.

VII. ADDITIONAL WORK AND MODIFICATION OF THE SOW

15. No Warranty. The provisions of the SOW attached as Appendix 2 reflect the parties' best efforts at the time of execution of this Decree to define the technical work required to perform the remedial action described in the ROD. The Parties acknowledge and agree that approval by U.S. EPA of either the SOW or the Work Plan does not constitute a warranty or representation of any kind that the SOW or Work Plan will achieve the Cleanup and Performance Standards, and shall not foreclose the United States from seeking compliance with the applicable Cleanup and Performance Standards.

16. Modification of the Scope of Work. The Parties recognize that modification of the SOW may be required at some point in the future, e.g. to provide for additional work needed to meet the Cleanup and Performance Standards specified above. U.S. EPA, however, will not seek a modification of the SOW to require remediation of groundwater in the area specifically excluded from the Area of Attainment described in Section II.G. of the SOW.

The following procedures shall be followed to amend the SOW:

a. The party that determines that additional work or other modification of the SOW is necessary shall provide written notice of such determination to the other parties.

b. The other parties shall respond to such notice in writing within thirty (30) days of receipt or such other time as may be agreed to by the parties.

17. Modification by Agreement. If the parties agree on the modifications to the SOW, the agreement shall be in writing, and shall be submitted, along with the amended SOW, for approval of the Court.

18. Dispute Resolution. If the parties do not agree on the proposed modifications, they shall initiate dispute resolution pursuant to Section XIV of this Decree. The scope and standard of review set forth in para. 40 shall govern any judicial determination in such dispute.

VIII. U.S. EPA PERIODIC REVIEW TO ASSURE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

19. To the extent required by Section 121(c) of CERCLA, 42 U.S.C. §9621(c), and any applicable regulations, U.S. EPA shall review the remedial action at the Facility at least every five (5) years after the entry of this Consent Decree to assure that human health and the environment are being protected by the remedial action being implemented. If upon such review, U.S. EPA determines that further response action is appropriate at the Facility in accordance with Section 104 or 106, then, consistent

with Section XVIII of this Consent Decree and with the NCP, the U.S. EPA may take or require such action.

20. Settling Defendants shall be provided with an opportunity to confer with U.S. EPA on any response action proposed as a result of U.S. EPA's 5-year reviews and to submit written comments for the record. The final decision of U.S. EPA shall be subject to judicial review pursuant to the dispute resolution provisions in Section XIV hereof, if U.S. EPA seeks to require the Settling Defendants to undertake such work.

IX. QUALITY ASSURANCE

21. Settling Defendants shall use quality assurance, quality control, and chain of custody procedures in accordance with U.S. EPA's "Interim Guidelines and Specifications For Preparing Quality Assurance Project Plans" (QAM-005/80) and subsequent amendments to such guidelines upon notification to Settling Defendants of such amendments by U.S. EPA. Amended guidelines shall apply only to procedures conducted after such notification. Prior to the commencement of any monitoring project under this Consent Decree, Settling Defendants shall submit a Quality Assurance Project Plan ("QAPP") to U.S. EPA and the State, consistent with the SOW and applicable guidelines, in accordance with paragraphs 13-14 hereof. Validated sampling data generated consistent with the QAPP and reviewed and approved by U.S. EPA shall be admissible as evidence, without objection, in any proceeding to enforce this Decree. Each laboratory utilized by Settling Defendants in implementing this Consent Decree shall

be subject to approval by U.S. EPA. Settling Defendants shall assure that U.S. EPA personnel or authorized representatives are allowed access to each such laboratory. In addition, Settling Defendants shall, if requested, have their laboratory analyze samples submitted by U.S. EPA for quality assurance monitoring.

X. FACILITY ACCESS, SAMPLING, DOCUMENT AVAILABILITY

22. Access to Facility and Other Property Controlled by Settling Defendants. As of the date of lodging of this Consent Decree, and to the extent that Settling Defendants control access to the Facility, the United States, the Settling Defendants and Settling Defendants' contractors shall have access at all times to the Facility, and shall have access to any other property controlled by or available to Settling Defendants to which access is necessary to effectuate the remedial design or remedial action required pursuant this Decree. Subject to the foregoing limitations, access shall be allowed for the purposes of conducting activities related to this Decree, including but not limited to:

a. Performing and monitoring the Work or any other activities taking place at the Facility;

b. Verifying any data or information submitted to the United States;

c. Conducting investigations relating to contamination at or near the Facility;

d. Obtaining samples;

e. Assessing the need for, planning, or implementing additional response actions at or near the Facility;

f. Inspecting and copying records, operating logs, contracts or other documents maintained or generated by Settling Defendants or their agents, consistent with this Decree and applicable law; or

g. Assessing Settling Defendants' compliance with this Consent Decree.

23. Access to Other Property. To the extent that the Facility or other areas where Work is to be performed hereunder is presently owned by persons other than Settling Defendants, Settling Defendants shall use best efforts to secure from such persons access for Settling Defendants, Settling Defendants' contractors, the United States, the State, and their authorized representatives, as necessary to effectuate this Consent Decree. If access is not obtained despite best efforts within thirty (30) days of the date of entry of this Decree, Settling Defendants shall promptly notify the United States. The United States thereafter may assist Settling Defendants in obtaining access, to the extent necessary to effectuate the remedial action for the Facility, using such means as it deems appropriate. The United States' costs in this effort, including attorney's fees and other expenses and any compensation that the United States may be required to pay to the property owner, shall be considered Response Costs and shall be reimbursed by Settling Defendants in accordance with Section XVI of this Decree (Reimbursement).

24. Access Authority Retained. Nothing herein shall restrict in any way the United States' access authorities and rights under CERCLA, RCRA or any other applicable statute, regulation or permit.

25. Sampling Availability. Settling Defendants shall make available to U.S. EPA the results of all sampling and/or tests or other data generated or received by Settling Defendants with respect to the implementation of this Consent Decree. U.S. EPA, upon request, shall make available to the Settling Defendants the results of sampling and/or tests or other data generated by U.S. EPA or their contractors.

26. Split Samples. Upon request a party taking samples shall allow other parties and/or their authorized representatives to take split or duplicate samples. The party taking samples shall give at least 14 days prior notice of sample collection activity to the other parties.

XI. REPORTING REQUIREMENTS

27. Monthly Progress Reports. Settling Defendants shall prepare and provide to the United States and the State written monthly progress reports which include: 1) A description of the actions which have been taken towards achieving compliance with the Consent Decree and SOW, and attach copies of appropriate supporting documentation; 2) A description of and estimate of the percentage of the RD/RA completed, including unresolved delays encountered or anticipated that may affect the project schedule; 3) A summary of all results of sampling, testing,

laboratory analysis, and all other data received by Settling Defendants during the course of the work which has passed quality assurance and quality control procedures, as well as copies of daily reports (if requested) and inspection reports; 4) A description of all deviations from the approved work plans, plans, or specifications; 5) A description of all problems or potential problems encountered during the reporting period, and actions being taken to rectify problems; 6) A description of all contacts with representatives of the local community, public interest groups, or state government; 7) A description of any changes in personnel; and, 8) A description of the projected work, including all documents to be submitted during the next reporting period. Progress reports are to be submitted to U.S. EPA and the State by the tenth day of every month following the lodging of this Consent Decree.

28. Other Reporting Requirements. Settling Defendants shall submit reports, plans and data required by the SOW, the RD/RA Work Plan or other approved plans in accordance with the schedules set forth in such plans.

29. Reports of Releases. Upon the occurrence of any event during performance of the Work which, pursuant to Section 103 of CERCLA, requires reporting to the National Response Center, Settling Defendants shall promptly orally notify the U.S. EPA Remedial Project Manager ("RPM") or On-Scene Coordinator ("OSC"), or in the event of the unavailability of the U.S. EPA RPM, the Emergency Response Section, Region V, United States Environmental

Protection Agency, in addition to the reporting required by Section 103. Within 20 days of the onset of such an event, Settling Defendants shall furnish to the United States and the State a written report setting forth the events which occurred and the measures taken, and to be taken, in response thereto. Within 30 days of the conclusion of such an event, Settling Defendants shall submit a report setting forth all actions taken to respond thereto.

30. Annual Report. Settling Defendants shall submit each year, within thirty (30) days of the anniversary of the entry of the Consent Decree, a report to the Court and U.S. EPA setting forth the status of response actions at the Facility, which shall include at a minimum a statement of major milestones accomplished in the preceding year, a statement of tasks remaining to be accomplished, and the schedule for implementation of the remaining Work.

XII. REMEDIAL PROJECT MANAGER/PROJECT COORDINATORS

31. Designation/Powers. U.S. EPA shall designate a Remedial Project Manager ("RPM") and/or an On Scene Coordinator ("OSC") for the Facility, and it may designate other representatives, including U.S. EPA employees, and federal contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. The RPM/OSC shall have the authority lawfully vested in an RPM/OSC by the National Contingency Plan, 40 CFR Part 300. In addition, the RPM/OSC shall have the authority to halt any work required by

this Consent Decree and to take any necessary response action when conditions at the Facility may present an imminent and substantial endangerment to public health or welfare or the environment. Settling Defendants shall also designate a Project Coordinator who shall have primary responsibility for implementation of the Work at the Facility.

32. Communications. To the maximum extent possible, except as specifically provided in the Consent Decree, communications between Settling Defendants and U.S. EPA concerning the implementation of the work under this Consent Decree shall be made between the Project Coordinators and the RPM/OSC.

33. Identification of Personnel. Within twenty (20) calendar days of the effective date of this Consent Decree, Settling Defendants and U.S. EPA shall notify each other, in writing, of the name, address and telephone number of the designated Project Coordinator and the RPM/OSC. If the identity of any these persons changes, notice shall be given to the other parties at least five (5) business days before the changes become effective.

XIII. FORCE MAJEURE

34. Definition. "Force Majeure" for purposes of this Consent Decree is defined as any event arising from causes beyond the control of Settling Defendants which delays or prevents the performance of any obligation under this Consent Decree notwithstanding Settling Defendants' best efforts to avoid the delay. Increased costs or expenses or non-attainment of the

Performance or Cleanup Standards shall not constitute "force majeure" events.

35. Notice to RPM Required. When circumstances occur which may delay the completion of any phase of the Work or delay access to the Facility or to any property on which any part of the Work is to be performed, whether or not caused by a "force majeure" event, Settling Defendants shall promptly notify the RPM/OSC by telephone, or in the event of their unavailability, the Director of the Waste Management Division of U.S. EPA. Within twenty (20) days of the event which Settling Defendants contend is responsible for the delay, Settling Defendants shall supply to the United States in writing the reason(s) for and anticipated duration of such delay, the measures taken and to be taken by Settling Defendants to prevent or minimize the delay, and the timetable for implementation of such measures. Failure to give such oral notice and written explanation in a timely manner shall constitute a waiver of any claim of force majeure.

36. If U.S. EPA agrees that a delay is or was attributable to a "force majeure" event, the Parties shall modify the SOW or RD/RA Work Plan to provide such additional time as may be necessary to allow the completion of the specific phase of Work and/or any succeeding phase of the Work affected by such delay.

37. If U.S. EPA does not agree with Settling Defendants that the reason for the delay was a "force majeure" event, that the duration of the delay is or was warranted under the circumstances, or that the length of additional time requested

by Settling Defendants for completion of the delayed work is necessary, U.S. EPA shall so notify Settling Defendants in writing. Settling Defendants shall initiate any formal dispute resolution proceeding under paragraph 39 below no later than 15 days after receipt of such notice. In such a proceeding, Settling Defendants have the burden of proving that the event was a force majeure, that best efforts were exercised to avoid and mitigate the effects of the delay, that the duration of the delay is or was warranted, that the additional time requested for completion of the Work involved is necessary to compensate for the delay, and that the notice provisions of paragraph 35 were complied with.

XIV. DISPUTE RESOLUTION

38. The Parties to this Consent Decree shall attempt to resolve expeditiously any disagreements concerning the meaning, application or implementation of this Consent Decree. Any party seeking dispute resolution first shall provide the other parties with an "Informal Notice of Dispute" in writing and request an informal dispute resolution period, which shall not exceed thirty (30) days, unless such period is extended by mutual agreement between the parties.

39. If the dispute is not resolved within the informal discussion period, any party may initiate formal dispute resolution by giving a written "Formal Notice of Dispute" to the other parties no later than the 15th day following the conclusion of the informal dispute resolution period. A party shall seek

formal dispute resolution prior to the expiration of the informal discussion period where the circumstances require prompt resolution.

40. Formal dispute resolution for disputes pertaining to the selection or adequacy of remedial design or remedial action (including the selection and adequacy of any plans which are required to be submitted for government approval under this Decree and the adequacy of Work performed) shall be conducted according to the following procedures:

a. Within ten (10) days of the service of the Formal Notice of Dispute pursuant to the preceding paragraph, or such other time as may be agreed to by the parties, the party who gave the notice shall serve on the other parties to this Decree a written statement of the issues in dispute, the relevant facts upon which the dispute is based, and factual data, analysis or opinion supporting its position (hereinafter the "Statement of Position"), and shall provide copies of all supporting documentation on which such party relies.

b. Opposing parties shall serve their Statements of Position and copies of supporting documentation within twenty (20) days after receipt of the complaining party's Statement of Position or such other time as may be agreed to by the parties.

c. U.S. EPA shall maintain an administrative record of any dispute governed by this paragraph. The record shall include the Formal Notice of Dispute, the Statements of Position, all supporting documentation submitted by the parties, and any other

material on which the U.S. EPA decision maker relies for the administrative decision provided for below. The record shall be available for inspection and copying by all parties. The record shall be closed no less than ten (10) days before the administrative decision is made, and U.S. EPA shall give all parties prior notice of the date on which the record will close.

d. Upon review of the administrative record U.S. EPA shall issue a final decision and order resolving the dispute.

e. Any decision and order of U.S. EPA pursuant to subparagraph d. shall be reviewable by this Court, provided that a Notice of Judicial Appeal is filed within ten (10) days of receipt of U.S. EPA's decision and order. Judicial review will be conducted on U.S. EPA's administrative record and U.S. EPA's decision shall be upheld unless it is demonstrated to be arbitrary and capricious or otherwise not in accordance with law.

41. Judicial dispute resolution for any issues not governed by the preceding paragraph may be initiated by petition to the Court and shall be governed by the Federal Rules of Civil Procedure. Except as specifically provided in other provisions of this Decree, e.g. Section XIII, this Decree does not establish procedures or burdens of proof for such dispute resolution proceedings.

42. The invocation of the procedures stated in this Section shall not extend or postpone Settling Defendants' obligations under this Consent Decree with respect to the disputed issue unless and until U.S. EPA agrees otherwise. U.S. EPA's position

on an issue in dispute shall control until such time as the Court orders otherwise in accordance with the provisions of this Section.

43. Any applicable Stipulated Penalties continue to accrue during dispute resolution, as provided in Section XVII hereof. Settling Defendants may seek forgiveness of stipulated penalties that accrue during dispute resolution by petition to U.S. EPA and/or the Court pursuant to paragraph 62. below.

44. Upon the conclusion of any formal or informal dispute resolution under this Section which has the effect of nullifying or altering any provision of the RD/RA Work Plan or any other plan or document submitted and approved pursuant to this Decree, Settling Defendants shall submit an amended plan, in accordance with the decision, to U.S. EPA within fifteen (15) days of receipt of the final order or decision. Amendments of the SOW as a result of dispute resolution proceedings are governed by Section VII above. Amendments of a plan or other document as a result of dispute resolution shall not alter any dates for performance unless such dates have been specifically changed by the order or decision. Extension of one or more dates of performance in the order or decision does not extend subsequent dates of performance for related or unrelated items of Work unless the order or decision expressly so provides or the parties so agree.

XV. RETENTION AND AVAILABILITY OF INFORMATION

45. Settling Defendants shall make available to U.S. EPA and the State and shall retain the following documents until 6 years following the third "five-year review" conducted for the Facility pursuant to Section 121(c) of CERCLA (or the final review, if there are fewer than three reviews): all records and documents in their possession, custody, or control which relate to the performance of this Consent Decree, including, but not limited to, documents reflecting the results of any sampling, tests, or other data or information generated or acquired by any of them, or on their behalf, with respect to the Facility and all documents pertaining to their own or any other person's liability for response action or costs under CERCLA. After this period of document retention, Settling Defendants shall notify U.S. DOJ, U.S. EPA and the State at least ninety (90) calendar days prior to the destruction of any such documents, and upon request by U.S. EPA, Settling Defendants shall relinquish custody of the documents to U.S. EPA.

46. Settling Defendants may assert business confidentiality claims covering part or all of the information provided in connection with this Consent Decree in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. §9604(e)(7), and pursuant to 40 CFR §2.203(b) and applicable State law. Information determined to be confidential by U.S. EPA will be afforded the protection specified in 40 CFR Part 2, Subpart B. If no such claim accompanies the information when it is submitted to U.S. EPA and

the State, the public may be given access to such information without further notice to Settling Defendants.

47. Information acquired or generated by Settling Defendants in performance of the Work that is subject to the provisions of Section 104(e)(7)(F) of CERCLA, 42 U.S.C. §9604(e)(7)(F), shall not be claimed as confidential by Settling Defendants.

48. In the event that Settling Defendants' obligation to produce documents under this Section includes documents which are privileged from disclosure as attorney-client communications, attorney work-product or other privilege recognized by law, Settling Defendants may seek to withhold production of such documents to avoid improper disclosure. At the time production is requested, Settling Defendants must provide the United States all information necessary to determine whether the document is privileged, including such information as is generally required under the Federal Rules of Civil Procedure. If the United States does not agree with the Settling Defendant's claim of privilege, Settling Defendants may seek protection of the documents from the Court. Settling Defendants shall not withhold as privileged any information or documents that are created, generated or collected pursuant to requirements of this Decree, regardless of whether the document has been generated in the form of an attorney-client communication or other generally privileged manner. Settling Defendants may not withhold as privileged any documents that are

subject to the public disclosure provision of Section 104(e)(7)(F) of CERCLA, 42 U.S.C. §9604(e)(7)(F).

XVI. REIMBURSEMENT

49. Within 45 days of the entry of this Consent Decree, Settling Defendants shall pay $1,006,772.00 to the EPA Hazardous Substances Superfund, delivered to the U.S. EPA, Superfund Accounting, P.O. Box 70753, Chicago, Illinois 60673 in the form of a certified or cashier check payable to "EPA Hazardous Substances Superfund," and referencing CERCLA Number TJB 05B 679 and DOJ Case Number 90-11-2-177. A copy of such check shall be sent to the Director, Waste Management Division, U.S. EPA, Region V and to the Assistant Attorney General, Environment and Natural Resources Division, U.S. Department of Justice, at the addresses provided in Section XXI (Notices). This payment is for reimbursement of past costs claimed by the United States in this action through April 30, 1991.

50. Settling Defendants shall pay all Response Costs incurred by the United States after April 30, 1991, (hereinafter referred to collectively as "Future Response Costs"). Such Response Costs shall include all Oversight Costs, all costs of access required to be paid pursuant to Section X hereof, and all costs incurred in enforcing this decree. Payment of Response Costs under Section XVI by Settling Defendants does not constitute payment of a penalty or fine.

51. The United States shall submit their claims for Future Response Costs incurred up to the date of entry of the Decree as

soon as practicable after entry of the Decree. Claims for Future Costs shall be submitted periodically by U.S. EPA, as practicable and shall include cost documentation in the form of an Itemized Cost Summary or equivalent. Payments shall be made, as specified in paragraph 49 above, within 30 days of the submission of the above claims. Settling Defendants may inspect the United States' cost documentation upon request.

52. Settling Defendants may agree among themselves as to the apportionment of responsibility for the payments required by this Section, but their liability to the United States and the State for these payments shall be joint and several.

XVII. STIPULATED PENALTIES

53. Settling Defendants shall pay stipulated penalties to the United States in the amounts set forth below for each failure to complete any of the following requirements of this Consent Decree in an acceptable manner and within the time schedules established by the SOW, the RD/RA Work Plan or in other plans submitted and approved under this Decree:

	PENALTY (per day)		
	EACH DAY UP TO 30 DAYS	EACH DAY FROM 31 TO 60 DAYS	EACH DAY OVER 60 DAYS
Failure to submit progress reports	$500	$1,000	$2,500
Failure to submit Work Plan, including any component thereof	$2,500	$7,500	$10,000
Failure to comply with any schedule contained within the RD/RA work	$2,500	$7,500	$10,000

plan

Failure to complete following components of remedial action:			
Soil Remediation	$2,500	$7,500	$10,000
Treatment of Tank Contents and Tank Disposal	$2,500	$7,500	$10,000
Provision of an Alternate Water Supply	$2,500	$7,500	$10,000
Groundwater Extraction and Treatment	$2,500	$7,500	$10,000
RCRA Cap or Soil Cover	$2,500	$7,500	$10,000
Monitoring Systems	$2,500	$7,500	$10,000
Failure to comply with notice or other requirements of this Consent Decree:	$500	$2,000	$5,000
Failure to take action to abate an endangerment under Section XXIII:	$10,000	$15,000	$20,000

54. All penalties begin to accrue on the day after complete performance is due or the day a violation occurs, and continue to accrue through the final day of correction of the noncompliance or completion of performance. Any modifications of the time for performance shall be in writing and approved by U.S. EPA. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

55. Following U.S. EPA's determination that Settling Defendants have failed to comply with the requirements of this Consent Decree, U.S. EPA shall give Settling Defendants written notification of the same and describe the non-compliance. This

notice shall also indicate the amount of penalties due. However, penalties shall accrue as provided in the preceding paragraph regardless of whether U.S. EPA has notified Settling Defendants of a violation.

56. All penalties owed to the United States under this Section shall be payable within 30 days of receipt of the notification of non-compliance, unless Settling Defendants invoke the dispute resolution procedures under Section XIV.

57. Settling Defendants may dispute the United States' right to the stated amount of penalties on the grounds that the violation is excused by the Force Majeure provisions of Section XIII or that it is based on a mistake of fact. The dispute resolution procedures under Section XIV shall be followed for such a dispute.

58. Neither the filing of a petition to resolve a dispute nor the payment of penalties shall alter in any way Settling Defendants' obligation to continue and complete the performance required hereunder.

59. Penalties shall continue to accrue as provided in paragraph 55 during the dispute resolution period and shall be paid as follows:

a. If the dispute is resolved by agreement or by decision or order of U.S. EPA which is not appealed to this Court, accrued penalties shall be paid to U.S. EPA within fifteen (15) days of the agreement or the receipt of U.S. EPA decision or order;

b. If the dispute is appealed to this Court, accrued penalties shall be paid to U.S. EPA within fifteen (15) days of receipt of the Court's decision or order, except as provided in subparagraph c below;

c. If the District Court's decision is appealed by any party, Settling Defendants shall pay all accrued penalties into an interest-bearing escrow account within fifteen (15) days of receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every sixty (60) days. Within fifteen (15) days of receipt of the appellate court decision, the escrow agent shall pay the balance of the account to U.S. EPA and/or to Settling Defendants to the extent that they prevail, as determined pursuant to the following paragraph.

60. Settling Defendants shall not owe stipulated penalties for any items upon which they prevail in dispute resolution. Settling Defendants shall request a specific determination at each stage of dispute resolution as to the issues and items upon which they have prevailed and as to the amount of any stipulated penalties owed.

61. Notwithstanding the above provisions, the Settling Defendants shall have the right to petition the Court or U.S. EPA (according to the level of dispute resolution reached) for forgiveness of stipulated penalties that accrue during dispute resolution for items upon which they did not prevail, based on a finding that (1) the delay in work or other violation that caused

the stipulated penalty to accrue was necessary and appropriate during the dispute resolution proceeding, (2) Settling Defendants' position regarding the dispute had substantial support in law and fact and reasonably could have been expected to prevail, considering the applicable standard of review, and (3) Settling Defendants sought dispute resolution at the earliest practicable time and took all other appropriate steps to avoid any delay in remedial action work as a result of the dispute. If the Court or U.S. EPA so finds, they may grant an appropriate reduction in the stipulated penalties that accrued during the dispute resolution period. Settling Defendants shall have the burdens of proof and persuasion on any petition submitted under this provision.

62. Interest shall begin to accrue on the unpaid balance of stipulated penalties on the day following the date payment is due. Pursuant to 31 U.S.C. §3717, interest shall accrue on any amounts overdue at a rate established by the Department of Treasury for any period after the date of billing. A handling charge will be assessed at the end of each 30 day late period, and a six percent per annum penalty charge will be assessed if the penalty is not paid within 90 days of the due date. Penalties shall be paid in accordance with paragraph 49 hereof.

63. If Settling Defendants fail to pay stipulated penalties, the United States may institute proceedings to collect the penalties. In any such proceeding, penalties shall be paid as provided in paragraph 49 above.

64. Notwithstanding any of the above provisions, U.S. EPA may elect to assess civil penalties and/or to bring an action in U.S. District Court pursuant to Section 109 of CERCLA to enforce the provisions of this Consent Decree. Payment of stipulated penalties shall not preclude U.S. EPA from electing to pursue any other remedy or sanction to enforce this Consent Decree, and nothing shall preclude U.S. EPA from seeking statutory penalties against Settling Defendants for violations of statutory or regulatory requirements.

XVIII. COVENANT NOT TO SUE

65. Except as otherwise specifically provided in the following paragraph or elsewhere in this Decree, the United States covenants not to sue or take any administrative action against the Settling Defendants for Covered Matters. Covered Matters shall mean claims available to the United States under Sections 106 and 107 of CERCLA and Section 7003 of RCRA for the Work to be performed under this Decree and for any monies paid by Settling Defendants to the United states pursuant to Section XVI of this Decree. With respect to Future Liability, this covenant not to sue shall take effect upon certification by U.S. EPA of the completion of the remedial action concerning the Facility pursuant to Section XXVI below.

66. "Covered Matters" does not include:

a. Liability arising from hazardous substances removed from the Facility;

b. Criminal liability;

c. Claims based on a failure by the Settling Defendants to meet the requirements of this Consent Decree;

d. Any matters for which the United States is owed indemnification under Section XIX hereof;

e. Liability for violations of Federal or State law which occur during implementation of the remedial action.

f. Liability for claims of any sort related to any other facility (e.g. Pagel's Pit).

g. Liability for performance of remedial design or remedial action at the Facility, other than the Work required hereunder, or for reimbursement of the United States for any response costs other than those paid hereunder.

67. Notwithstanding any other provision in this Consent Decree, the United States reserves the right to (a) institute proceedings in this action or in a new action or to issue an Order seeking to compel the Settling Defendants to perform any additional response work at the Facility, and (b) institute proceedings in this action or in a new action seeking to reimburse the United States for its Future Response Costs and to reimburse the State for its matching share of any response action undertaken by U.S. EPA and/or the State under CERCLA, relating to the Facility, if:

a. for proceedings prior to U.S. EPA certification of completion of the remedial action concerning the Facility,

(i) conditions at the Facility, previously unknown to the United States, are discovered after the entry of this Consent decree, or

(ii) information is received, in whole or in part, after the entry of this Consent Decree, and these previously unknown conditions or this information indicates that the remedial action is not protective of human health and the environment; and

b. for proceedings subsequent to U.S. EPA certification of completion of the remedial action concerning the Facility,

(i) conditions at the Facility, previously unknown to the United States, are discovered after the certification of completion by U.S. EPA, or (ii) information is received, in whole or in part, after the certification of completion by U.S. EPA, and these previously unknown conditions or this information indicates that the remedial action is not protective of human health and the environment. In the event the United States institutes proceedings under this paragraph, Settling Defendants, reserve all defenses and rights of contribution otherwise available to them.

68. For purposes of subparagraph (a) of the preceding paragraph, the information received by and the conditions known to the United States are that information and those conditions set forth in the Record of Decision (the "ROD") attached as Appendix 1 hereto or in documents contained in U.S. EPA's administrative record supporting the ROD, and the Record of Decision issued by U.S. EPA for the Facility September 27, 1985. For purposes of subparagraph (b) of the preceding paragraph, the information received by and the conditions known to the United States are that information and those conditions set forth in the ROD, the administrative record supporting the ROD, and the Record of Decision issued September 27, 1985, or in reports or other documents submitted to U.S. EPA pursuant to this Consent Decree or generated by U.S. EPA in overseeing this Consent Decree prior to certification of completion.

69. Notwithstanding any other provisions in this Consent Decree, the covenant not to sue in this Section shall not relieve the Settling Defendants of their obligation to meet and maintain compliance with the requirements set forth in this Consent Decree, including the conditions in the ROD, which are incorporated herein, and the United States reserves its rights to take response actions at the Facility in the event of a breach of the terms of this Consent Decree and to seek recovery of costs incurred after entry of the Consent Decree: 1) resulting from such a breach; 2) relating to any portion of the Work funded or performed by the United States; or 3) incurred by the United

States as a result of having to seek judicial assistance to remedy conditions at or adjacent to the Facility.

70. Settling Defendants hereby release and waive any rights to assert any claims against the United States or any agency of the United States relating to the Facility.

71. Nothing in this Consent Decree shall constitute or be construed as a release or a covenant not to sue regarding any claim or cause of action against any person, firm, trust, joint venture, partnership, corporation or other entity not a signatory to this Consent Decree for any liability it may have arising out of or relating to the Facility. The United States expressly reserves the right to continue to sue any person, other than the Settling Defendants, in connection with the Facility. In addition, the Settling Defendants expressly reserve their right to sue or to continue to sue any person(s), with the exception of the United States or any agency of the United States, in connection with the site.

72. With regard to claims for contribution against the Settling Defendants for matters addressed in this Consent Decree, the Parties hereto agree that the Settling Defendants are entitled to such protection from contribution actions or claims as is provided in CERCLA Section 113(f)(2), 42 U.S.C. Section 9613(f)(2).

XIX. INDEMNIFICATION; OTHER CLAIMS

72. Settling Defendants agree to indemnify, save and hold harmless the United States or its representatives from any and

all claims or causes of action arising from the acts or omissions of Settling Defendants and/or their representatives, including contractors and subcontractors, in carrying out the activities pursuant to this Consent Decree. The United States shall notify Settling Defendants of any such claims or actions promptly after receipt of notice that such a claim or action is anticipated or has been filed.

73. The United States does not assume any liability of Settling Defendants by virtue of entering into this Consent Decree or by virtue of any designation that may be made of Settling Defendants as U.S. EPA's representatives under Section 104(e) of CERCLA for purposes of carrying out this Decree. The United States is not to be construed as a party to any contract entered into by Settling Defendants in carrying out the activities pursuant to this Decree. The proper completion of the Work under this Consent Decree is solely the responsibility of Settling Defendants.

74. Settling Defendants waive their rights to assert any claims against the Hazardous Substances Superfund under CERCLA that are related to any costs incurred in the Work performed pursuant to this Consent Decree, and nothing in this Consent Decree shall be construed as U.S. EPA's preauthorization of a claim against the Superfund.

XX. INSURANCE/FINANCIAL RESPONSIBILITY

75. Settling Defendants shall effect the purchase of and shall maintain in force for the duration of the remedial action

work, comprehensive general liability and automobile insurance with limits of $5 million, combined single limit, naming as insured the United States. In addition, for the duration of this Consent Decree, Settling Defendants shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing work on behalf of Settling Defendants in furtherance of this Consent Decree. Prior to commencement of the Work at the Facility, Settling Defendants shall provide U.S. EPA with a certificate of insurance and a copy of the insurance policy. If Settling Defendants demonstrate by evidence satisfactory to the United States that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then with respect to that contractor or subcontractor Settling Defendants need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

76. Within sixty (60) days of entry of this Decree, Settling Defendants shall provide financial security, in the amount of $16,612,000.00, in one of the forms permitted under 40 C.F.R. 264.145, to assure completion of the Work at the Facility. This amount shall be reviewed annually and U.S. EPA, in its sole discretion, may reduce the amount of financial security to an amount equal to the current estimated cost of completion of the Work.

XXI. NOTICES

77. Whenever, under the terms of this Consent Decree, notice is required to be given, a report or other document is required to be forwarded by one party to another, or service of any papers or process is necessitated by the dispute resolution provisions of Section XIV hereof, such correspondence shall be directed to the following individuals at the addresses specified below:

As to the United States or U.S. EPA:

a. Steven P. Kaiser
Attn: Acme Solvent
Coordinator (5CS)
U.S. Environmental
Protection Agency
230 S. Dearborn Street
Chicago, Illinois 60604

b. Allison Hiltner
Attn: Acme Solvent Remedial
Project Manager (5HS-11)
U.S. Environmental Protection
Agency
230 S. Dearborn Street
Chicago, Illinois 60604

c. Chief, Environmental Enforcement Section
Environmental Enforcement Section
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20037
Ref. D.O.J. # 90-11-2-177

d. As to the State:

Paul Takacs
Acme Solvents Coordinator
Division of Land Pollution Control
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62706

As to Settling Defendants:

James Vroman
Winston and Strawn
35 West Wacker Drive
Chicago, Illinois 60601

XXII.

CONSISTENCY WITH NATIONAL CONTINGENCY PLAN

78. The United States agrees that the Work and additional work if any, if properly performed, is consistent with the provisions of the National Contingency Plan.

XXIII.

ENDANGERMENT AND EMERGENCY RESPONSE

79. In the event of any action or occurrence during the performance of the Work which causes or threatens a release of a hazardous substance into the environment which presents or may present an imminent and substantial endangerment to public health or welfare or the environment, Settling Defendants shall immediately take all appropriate action to prevent, abate, or minimize such release and endangerment, and shall immediately notify the RPM or, if the RPM is unavailable, the U.S. EPA Emergency Response Section, Region V, U.S. EPA. Settling Defendants shall take such action in accordance with all applicable provisions of the Health and Safety/Contingency Plan developed pursuant to the SOW and approved by U.S. EPA. In the event that Settling Defendants fail to take appropriate response action as required by this paragraph and U.S. EPA takes such

action instead, Settling Defendants shall reimburse the United States for all costs of the response action not inconsistent with the NCP. Payment of such response costs shall be made in the manner provided in Section XVI hereof.

80. Nothing in the preceding paragraph or in this Consent Decree shall be deemed to limit the response authority of the United States under 42 U.S.C. §9604.

XXIV. COMMUNITY RELATIONS

81. Settling Defendants shall cooperate with U.S. EPA in providing information regarding the progress of remedial design and remedial action at the Facility to the public. As requested by U.S. EPA, Settling Defendants shall participate in the preparation of all appropriate information disseminated to the public and in public meetings which may be held or sponsored by U.S. EPA to explain activities at or concerning the Facility.

XXV. RETENTION OF JURISDICTION; MODIFICATION

82. Retention of Jurisdiction. This Court will retain jurisdiction for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, or relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XIV hereof.

83. Modification. No material modification shall be made to this Consent Decree without written notification to and written approval of the parties and the Court except as provided

below or in Section VII (Modification of the Scope of Work; Additional Work). The notification required by this Section shall set forth the nature of and reasons for any requested modification. No oral modification of this Consent Decree shall be effective. Nothing in this paragraph shall be deemed to alter the Court's power to supervise or modify this Consent Decree.

XXVI. EFFECTIVE DATE AND CERTIFICATION OF COMPLETION OF REMEDY

84. This Consent Decree shall be effective upon the date of its entry by the Court, except to the extent provided in paragraph 13 regarding the commencement of remedial design upon lodging.

85. Certification of Completion of Remedial Action.

a. Application. When the Settling Defendants believe that construction of the RCRA cap or soil cover, and operation of the soil vapor extraction system, the bedrock vapor extraction system (if required by U.S. EPA), and the pump and treat system, as well as all other remedial actions required by the SOW and this Consent Decree have been completed and that the demonstration of compliance with Cleanup and Performance Standards has been made in accordance with this Consent Decree, they shall submit to the United States a Notification of Completion of Remedial Action and a final report which summarizes the work done, any modification made to the SOW or Work Plan(s) thereunder relating to the Cleanup and Performance Standards, and data demonstrating that the Cleanup and Performance Standards

have been achieved. The report shall be prepared and certified as true and accurate by a registered professional engineer and the Settling Defendants' Project Coordinator, and shall include appropriate supporting documentation.

b. Certification. Upon receipt of the Notice of Completion of Remedial Action, U.S. EPA shall review the final report and supporting documentation, and the remedial actions taken. U.S. EPA shall issue a Certification of Completion of Remedial Action upon a determination that Settling Defendants have completed construction of the RCRA cap or soil cover, and operation of the soil vapor extraction system, bedrock vapor extraction system (if required by U.S. EPA), and pump and treat system, as well as all other remedial actions required by the SOW and this Consent Decreein accordance with the terms of this Consent Decree and demonstrated compliance with Cleanup and Performance Standards, and that no further corrective action is required.

c. Post-Certification Obligations. Following Certification, Settling Defendants shall continue to perform the following Work: maintenance of the RCRA cap or soil cover; maintenance of the fencing; provision of the alternative water supply and perform all other operation and maintenance required under the approved Operation and Maintenance Plan required under Section III. 3. C. of the SOW.

86. Effect of Settlement. The entry of this Consent Decree shall not be construed to be an acknowledgment by the parties

that the release or threatened release concerned constitutes an imminent and substantial endangerment to the public health or welfare or the environment. Except as provided in the Federal Rules of Evidence, the participation by any party in this decree shall not be considered an admission of liability for any purpose, and the fact of such participation shall not be admissible in any judicial or administrative proceeding (except a proceeding to enforce this decree or in a proceeding brought by one or more Settling Defendants against one or more other Settling Defendants to enforce any contractual obligations imposed by an agreement among them), as provided in Section 122(d)(1)(B) of CERCLA.

ENTERED this ___ day of _____, 19__.

_____
U.S. District Judge

The parties whose signatures appear below hereby consent to the terms of this Consent Decree. The consent of the United States is subject to the public notice and comment requirements of Section 122(i) of CERCLA and 28 CFR 50.7.

UNITED STATES OF AMERICA

By: _____
Barry M. Hartman
Assistant Attorney
General
Environment & Natural Resources
Division
U.S. Department of Justice
Washington, D.C. 20530

Date: _____

By: _____
Daniel S. Jacobs
Trial Attorney
Environmental Enforcement Section
U.S. Department of Justice
Washington, D.C. 20530

Date: _____

By: _____
Valdas V. Adamkus
Regional Administrator
U.S. EPA, Region V

Date: 9/06/91.

By: _____
Steven R. Kaiser
Assistant Regional Counsel
U.S. EPA, Region V

Date: 4 SEPTEMBER 1991

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Allied-Signal Inc.
NAME OF SETTLING DEFENDANT (Type)
101 Columbia Road, Morristown, NJ 07962
Address

By: _____
Name of Officer (Type)

Alan Belzer

President and Chief Operating Officer
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

C.T. Corporation System
Name
208 S. La Salle St., Chicago, IL 60604
Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

Allied-Signal Inc.
(a Delaware corporation)

Certificate of Assistant Secretary

I, Dennis R. Marshall, DO HEREBY CERTIFY that I am a duly appointed Assistant Secretary of Allied-Signal Inc. (the "Corporation"), which is identified as a Settling Defendant in the Consent Decree in United States v. Akzo Coatings, et al., that Alan Belzer is President and Chief Operating Officer of the Corporation, and, in that capacity, he is authorized to execute and deliver on behalf of the Corporation the foregoing Consent Decree.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Corporation this 19th day of August, 1991.

Dennis R. Marshall

Assistant Secretary

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Atwood Enterprises Incorporated
NAME OF SETTLING DEFENDANT (Type)
P.O. Box 7327 Rockford Illinois 61126
Address

By: Bruce T. Atwood
Name of Officer (Type)

Bruce T. Atwood

VP - Sec. - Treas.
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Akzo Coatings Inc.
NAME OF SETTLING DEFENDANT (Type)

1930 Bishop Ln., Ste. 1600,Louisville,KY 40218
Address

By: x _____
Name of Officer (Type)

Peter Scolaro

Vice President, Manufacturing & Engineering
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Paul Brooks
Name

1930 Bishop Ln., Ste. 1600,Louisville, KY 40218
Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

BEROL CORPORATION

NAME OF SETTLING DEFENDANT (Type)

44 Old Ridgebury Road

Address P.O. Box 1302, Danbury CT 06813-1302

By: _____

Name of Officer (Type)

Robert J. Spies

Senior Vice President

Title Environmental and Corporate Affairs

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

_____

Name

_____

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

CROWN BEVERAGE PACKAGING, INC.
(formerly named Continental Beverage Packaging, Inc.)

August 27, 1991

NAME OF SETTLING DEFENDANT (Type)

9300 Ashton Rd. Phila., PA 19136
Address

By: Richard L. Krzyzanowski
Name of Officer (Type)

Secretary
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Robert Harris
Name

29 South LaSalle Street
Address
Suite 740
Chicago, IL 60603

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

The Dexter Corporation
NAME OF SETTLING DEFENDANT (Type)
1-7 East Water St., Waukegan, Illinois
Address

By: L.C. Afremow
Name of Officer (Type)

L.C. Afremow

V.P. Materials & Services
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

E. I. du Pont de Nemours & Company, Inc.
NAME OF SETTLING DEFENDANT (Type)
1007 Market Street, Wilmington, DE 19898
Address

By: P. B. Allen
Name of Officer (Type)

Vice-President - Manufacturing
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Earl Scheib of Illinois, Inc/
Chicago Loop Auto Refinishing
Co., Inc.

NAME OF SETTLING DEFENDANT (Type)

8737 Wilshire Blvd. Beverly Hills, Ca. 90211
Address

By: John K. Minnihan
Name of Officer (Type)

John K Minnihan

Vice President Finance
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

David C. McCormack
Hinshaw & Culbertson
Name

Suite 300, 222 North La Salle Street, Chicago, Illinois 60601-1081
Address

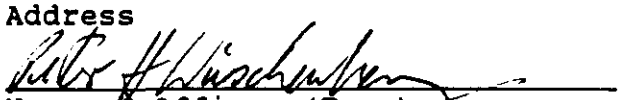
Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Fairbanks Morse Engine Division, Coltec Industries Inc

NAME OF SETTLING DEFENDANT (Type)

Address

By: 

Name of Officer (Type)

PETER H. WIESCHENBERG

Vice President

Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

FREEMAN CHEMICAL CORPORATION

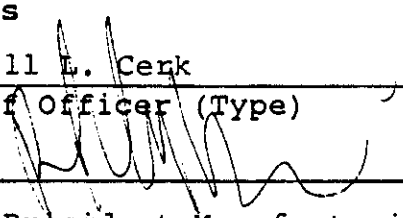
NAME OF SETTLING DEFENDANT (Type)

217 Freeman Drive, Port Washington, WI 5307

Address

By: Russell L. Cerk

Name of Officer (Type)



Vice President-Manufacturing

Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

GENERAL MOTORS CORPORATION
NAME OF SETTLING DEFENDANT (Type)
3031 W. Grand Blvd. - P. O. Box 33122
Address Detroit, MI 48232

By: Laura L. Romeo
Name of Officer (Type)

Laura L. Romeo

Attorney
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Harley-Davidson, Inc.
NAME OF SETTLING DEFENDANT (Type)
3700 West Juneau Avenue
Address Milwaukee, WI 53208

By: Linda S. Drake
Name of Officer (Type)

Legal Counsel
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

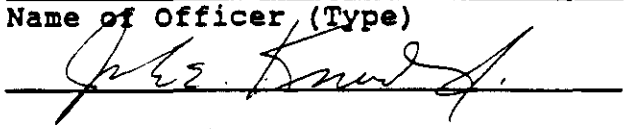
Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Henkel Corporation
NAME OF SETTLING DEFENDANT (Type)
2200 Renaissance Blvd., Gulph Mills, PA
Address

By: John E. Knudson
Name of Officer (Type)



Vice President-Finance & CFO
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

C T Corporation System
Name

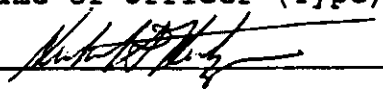
Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Hentzen Coatings, Inc.
NAME OF SETTLING DEFENDANT (Type)
6937 W. Mill Road, Milwaukee, WI 53218
Address

By: Herbert D. Hentzen
Name of Officer (Type)



President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

HYDROSOL, Inc
NAME OF SETTLING DEFENDANT (Type)
8407 S. 77th Ave.
Address BRIDGEVIEW IL 60455

By: RICHARD V BRETZER
Name of Officer (Type)
Richard V Bretzer
PRESIDENT
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

I.B. Distributors, Inc.
f/k/a Illinois Bronze Paint Company

NAME OF SETTLING DEFENDANT (Type)

666 Dundee Rd, Ste 902, Northbrook, IL 60062
Address

By: Mark A. Rothschild
Name of Officer (Type)

Executive Vice President
Title

-SEAL-

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Linda E. Benfield, Esq.
Foley & Lardner
Name

777 E. Wisconsin Avenue
Address

Milwaukee, WI 53202-5367

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

ACME

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

John L. Armitage Co.
NAME OF SETTLING DEFENDANT (Type)
1255 RT 46 Parsippany NJ
Address

By: Norman S. Armitage
Name of Officer (Type)
Norman S Armitage
President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in United States of America v. Akzo Coatings, et al.

Manpower International Inc.
NAME OF SETTLING DEFENDANT

5301 North Ironwood Road
Milwaukee, WI 53217
Address

Corporate Seal

By: Gilbert Palay
Name of Officer

(Signature of Officer)

Senior Executive Vice President
Title

STATE OF WISCONSIN)
)SS
COUNTY OF ROCK)

The foregoing Consent Decree was acknowledged before me on the 16th day of August, 1991, by Gilbert Palay, as Senior Executive Vice President of Manpower International Inc.

Robert E. Collins
Notary Public
My Commission is permanent.

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Robert E. Collins
Collins Law Firm
20 E. Milwaukee St., Suite 300
Janesville, WI 53545

Prior Notice to all Parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Playskool, Inc.
NAME OF SETTLING DEFENDANT (Type)
1027 Newport Ave, Pawtucket, RI 02862
Address

By: Donald M. Robbins
Name of Officer (Type)

Donald M. Robbins

Vice President General Counsel and Secretary
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

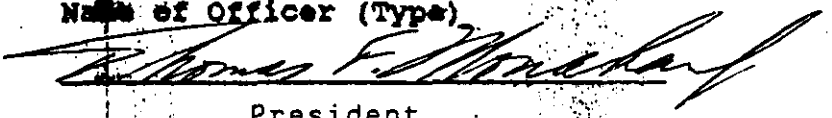
Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Progress Industries, Inc.
NAME OF SETTLING DEFENDANT (Type)

202 N. Oak Arcola, IL 61910
Address

By: Thomas F. Monahan, Jr.
Name of Officer (Type)



President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Reflector Hardware Corporation
NAME OF SETTLING DEFENDANT (Type)
1400 North 25th Avenue, Melrose Park, IL
Address

By: Thomas R. Berger
Name of Officer (Type)

Thomas R. Berger

Vice President - Finance
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Holleb & Coff
Name
55 E. Monroe, Chicago, IL 60603
Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

REYNOLDS METALS COMPANY
NAME OF SETTLING DEFENDANT (Type)
6601 West Broad St., Richmond, VA 23230
Address

ATTEST:

By: _____
Name of Officer (Type)
Julian H. Taylor
Vice President, Treasurer
Title

Donna C. Dabney
Assistant Secretary

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Rheem Manufacturing Company
NAME OF SETTLING DEFENDANT (Type)
405 Lexington Ave., New York, NY 10174
Address

By: Daniel H. Brown
Name of Officer (Type)

Daniel H. Brown

Vice President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

SCM Corporation / The Glidden Company
NAME OF SETTLING DEFENDANT (Type)

Address

By: Larry O. Espel
Name of Officer (Type)

LARRY O. ESPEL

ATTORNEY
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

SEYMOUR OF SYCAMORE INC
NAME OF SETTLING DEFENDANT (Type)
917 CROSBY AVE, SYCAMORE IL 60178
Address

By: RICHARD L. GUSTAFSON
Name of Officer (Type)
Richard L. Gustafson
CH V.P.
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Sundstrand Corporation
NAME OF SETTLING DEFENDANT (Type)
~~4949 Harrison Ave., Rockford, IL~~ 61125
Address

By: Berger G. Wallin
~~Name of~~ Officer (Type)

Executive Vice President - Chief
Title Operating Officer-Industrial

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

CT Corporation
Name
208 S. LaSalle Street
Address
Chicago, IL

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

The Tester Corporation
NAME OF SETTLING DEFENDANT (Type)

1020 Buckbee St, Rockford IL 61104
Address

By: Charles G. Miller
Name of Officer (Type)

Charles G. Miller

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Textron Inc.
NAME OF SETTLING DEFENDANT (Type)
40 Westminster St., Providence, R.I. 02903
Address

By: 

Name of Officer (Type)

Richard A. McWhirter

Senior Vice President and Secretary

Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

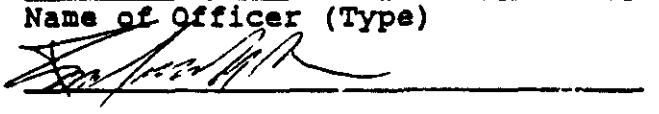
Jamieson M. Schiff
Name
Textron Inc.
Address
40 Westminster Street
Providence, Rhode Island 02903

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

Universal Chemicals & Coatings, Inc.
NAME OF SETTLING DEFENDANT (Type)
1975 Fox Lane, Elgin, IL 60123
Address

By: Frederick V. Chin
Name of Officer (Type)



Vice President, Operations
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Karen L. Douglas
Pretzel & Stouffer, Chartered
Name
One South Wacker Drive
Address
Suite 2500
Chicago, Illinois 60606-4673

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

THE VALSPAR CORPORATION
NAME OF SETTLING DEFENDANT (Type)
P.O. Box 1461, Minneapolis, MN 55440
Address

By: David C. Olfe
Name of Officer (Type)
David C. Olfe

Its Secretary
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Ronda P. Bayer
Fredrikson & Byron, P.A.
Name
1100 International Centre
900 Second Avenue South
Address Minneapolis, MN 55402

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

"The undersigned Settling Defendant hereby consents to the foregoing Consent Decree in U.S. v. Akzo Coatings, et al.."

ZARCO INDUSTRIES, INC.
NAME OF SETTLING DEFENDANT (Type)
3115 W. 36TH ST. CHICAGO, IL 60632
Address

By: JEFFREY I. ZAREM
Name of Officer (Type)
[signature]
PRESIDENT
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant's agent for service of process:

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant of any change in the identity or address of the Settling Defendant or its agent for service of process.

LIST OF APPENDICES

APPENDIX I

RECORD OF DECISION

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Acme Solvent Reclaiming, Inc.
Winnebago County, Illinois

STATEMENT OF BASIS AND PURPOSE

This decision document represents the selected remedial action for the Acme Solvent Reclaiming, Inc. site in Winnebago County, Illinois. This action was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, with the National Oil and Hazardous Substances Contingency Plan (NCP). This decision is based on the Administrative Record for this site.

The State of Illinois is expected to concur with the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE REMEDY

This remedy is the second of three potential operable units at the site. The first operable unit ROD called for excavation and incineration of soil, sludge, and other waste materials buried at the site. Instead, approximately 90 percent of these materials were excavated and disposed of in a hazardous waste landfill without the consent of USEPA or IEPA and approximately 10 percent remains on-site. Home carbon treatment units were provided to residents affected by site contamination, and additional studies were performed at the site under that ROD.

This second operable unit remedial action provides for treatment of the principal threats posed by contaminants in waste areas, soils, bedrock, and groundwater. Remaining risks at the site are reduced by engineering controls. A potential third operable unit will address an area of groundwater contamination between this and another Superfund site when additional studies have been completed to determine the source of this contamination.

The major components of the selected remedy include:

- Excavation of soils and sludges in two waste areas and treatment by low-temperature thermal stripping.

- Further treatment of residuals, if necessary, by solidification and on-site or off-site disposal.

- Incineration of the liquids and sludges in two tanks remaining on the site and disposal of the tanks.

- Provision of a permanent alternate water supply to residents with contaminated wells.

- Extraction and treatment of VOC-contaminated groundwater and discharge to surface water.

- Treatment of remaining VOC-contaminated soils and, if possible, bedrock by soil/bedrock vapor extraction.

- Consolidation of soils with remaining SVOC, PCB, and lead contamination and covering these soils and areas where residuals are landfilled on-site with a RCRA Subtitle C compliant cap.

- Long term groundwater monitoring.

- Fencing the site and providing, to the extent possible, deed and access restrictions and deed notices or advisories for residences with contaminated groundwater.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable and satisfies the statutory preference for remedies which employ treatment that reduces toxicity, mobility, or volume as a principal element.

Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted at least every five years after commencement of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

12/31/90

Date

FOR Valdas V. Adamkus
Regional Administrator
Region V

RECORD OF DECISION SUMMARY
ACME SOLVENT RECLAIMING, INC.

I. SITE LOCATION AND DESCRIPTION

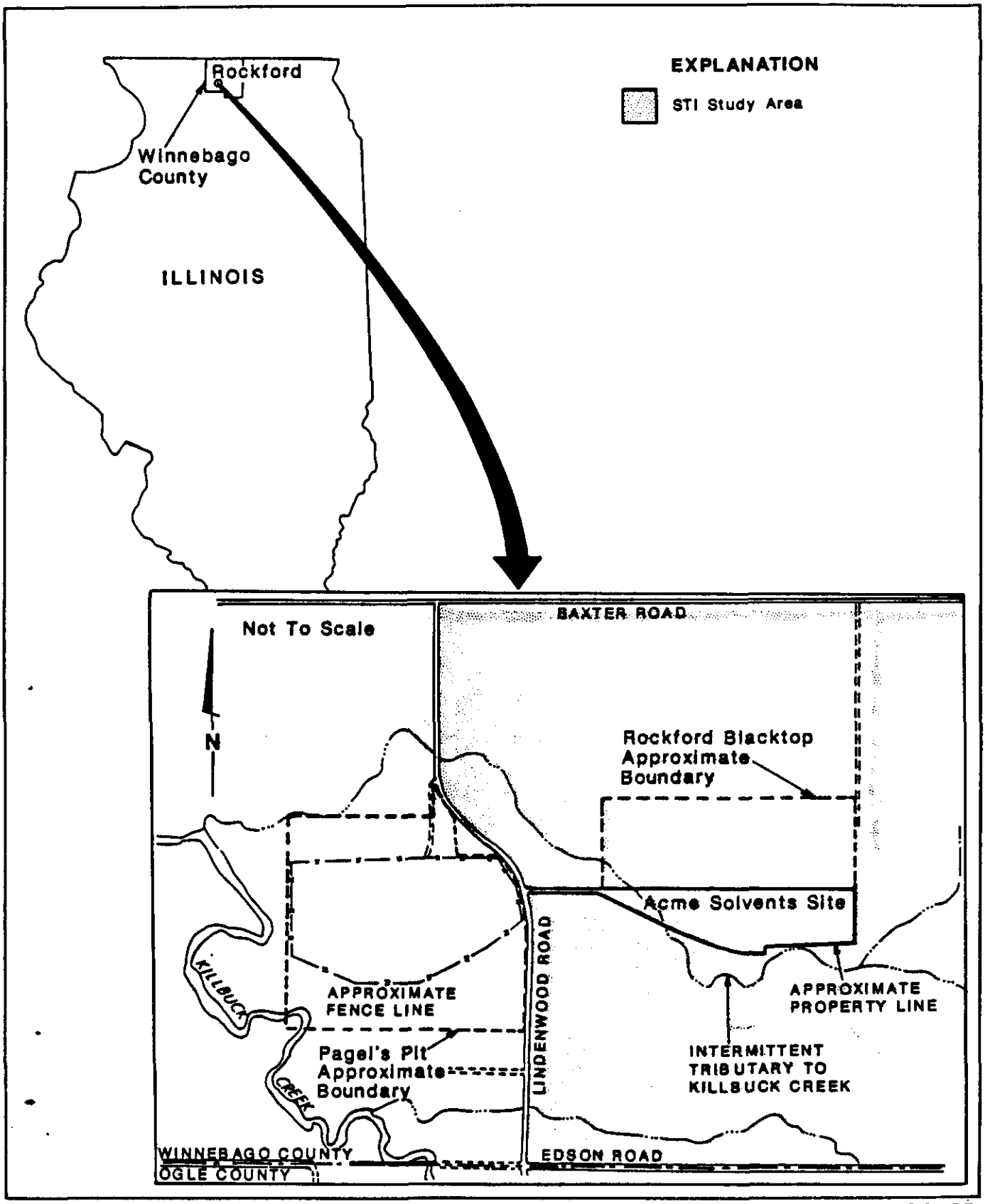
The Acme Solvent Reclaiming, Inc. site is located at 8400 Lindenwood Road, approximately five miles south of Rockford, Winnebago County, in northern Illinois (see Fig. 1). The site consists of approximately 20 acres of rolling uplands in a predominantly rural area. The only features on the site are a soil mound remaining from a previous removal operation, two 8,000 gallon tanks containing liquids and sludges, and a fenced decontamination area built during the site investigation.

Land around the site is used for agriculture, quarrying, and low-density, single family residences. The site is bounded by an active quarry to the north and farmland to the south and east. Immediately to the west is another Superfund site, Pagel's Pit Landfill (also known as Winnebago Reclamation Landfill). An ongoing remedial investigation/feasibility study (RI/FS) at Pagel's Pit is expected to be completed in 1991.

Approximately 400 people live within two miles of the site. The closest downgradient residences to the site are approximately 14 homes on Lindenwood and Edson Roads, with the nearest residence approximately one quarter mile from waste disposal areas. All residences in the area use private wells for their water supply.

An intermittent stream runs across and to the south of the site. The stream is a tributary to Killbuck Creek, which drains to the Kishwaukee River, then the Rock River. With the exception of the Rock River, surface waters downstream of the site are not used for public water supply. There are no floodplains, wetlands, critical habitats, or endangered species on or near the site.

The site is underlain by a thin layer of unconsolidated deposits. The unconsolidated deposits overlie the dolomites of the Platteville and Galena Groups. These dolomites, and the saturated unconsolidated deposits, comprise the Galena-Platteville aquifer. The Galena-Platteville aquifer has been classified as a Class II aquifer under United States Environmental Protection Agency's (USEPA's) Groundwater Protection Strategy and is extensively pumped by residential-supply wells in northern Illinois. The Galena and Platteville dolomites are underlain by the dolomitic shales and sandstones of the Glenwood Formation, a semi-confining unit which separates the overlying Galena-Platteville aquifer and the underlying St. Peter Sandstone aquifer. The St. Peter Sandstone aquifer is also a Class II aquifer and is extensively pumped for domestic, industrial, and municipal water-supply in northern Illinois.



Harding Lawson Associates
Engineers, Geologists & Geophysicists

Site Location Map

Acme Solvents Reclaiming, Inc., Site
Winnebago County, Illinois

FIGURE **1**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AT Jr.	17683,010.10		11/86		

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

From 1960 to 1973, the Acme Solvents site served as a disposal site for paints, oils, and still bottoms from the Acme Solvent Reclaiming, Inc. solvent reclamation plant in Rockford, Illinois. Wastes were dumped into depressions created from previous quarrying operations or by scraping overburden from the near surface bedrock to form berms. Empty drums were also stored at the site.

In September 1972, the Illinois Pollution Control Board (IPCB) ordered the operator to remove all drums and wastes from the site and to backfill the lagoons after the removal. Followup inspections subsequent to this Order revealed that the wastes and crushed drums were being left on site and covered with soil.

Releases from the facility were first documented in 1981 when downgradient residents complained of poor smelling drinking water from private wells. Sampling and analysis of well water showed chlorinated organic compounds at concentrations exceeding the USEPA's Health Advisories for drinking water. The Illinois Environmental Protection Agency (IEPA) recommended that these wells not be used, and in 1981 the owner of Pagel's Pit Landfill agreed to voluntarily supply affected residents with bottled water.

The Acme Solvents site was proposed to the National Priorities List (NPL) in 1982 and was included on the final NPL in September 1983. IEPA completed an RI/FS in 1984, and on September 27, 1985, USEPA signed a Record of Decision (ROD) to excavate an estimated 26,000 cubic yards (cy) of contaminated soils and sludges and treat them by on-site incineration. The ROD also called for provision of home carbon treatment units (HCTUs) to residents affected by site contamination and for further study of the groundwater and bedrock.

USEPA attempted to negotiate an agreement to implement the ROD with approximately 65 Potentially Responsible Parties, (PRPs), including the site owner/operators and several generators. USEPA and the PRPs were not able to reach an agreement. Instead, a consortium of 23 PRPs chose to disregard USEPA's ROD and to excavate and transport sludges and soils to permitted hazardous waste landfills. This action resulted in the inclusion of a new provision in the Superfund Amendments and Reauthorization Act of 1986, prohibiting unauthorized remedial actions by PRPs.

The PRP action was terminated in November 1986 when USEPA's Land Disposal Restrictions (LDRs), which prohibited land disposal of solvent- and dioxin-contaminated waste without treatment, went into effect. The PRP action removed approximately 40,000 tons of soil and sludge from the site, or an estimated 90 percent of the total. After completion of the action, an approximately 4,000-

ton waste pile and two tanks containing contaminated liquids and sludges remained at the site. Since then, an additional waste area containing approximately 2,000 tons of soils and sludges has been discovered.

In December 1986, 23 PRPs entered into a Consent Order with USEPA and IEPA to further study the remaining soil, bedrock, and groundwater contamination and to provide HCTUs and monitoring to affected residents.

Under this Consent Order, Harding Lawson Associates (HLA), a consultant for the PRPs, completed a Supplemental Technical Investigation (STI) in May 1990, an Endangerment Assessment (EA) in June 1990, and a Remedial Action Alternatives Evaluation (RAAE) in September 1990. HLA also completed an Engineering Evaluation/Cost Analysis (EE/CA) in August 1990 to evaluate alternatives to address the remaining waste areas and the two tanks (see Fig. 2).

USEPA issued general notice letters on June 9, 1990, informing PRPs of USEPA's intent to negotiate a remedial action for this site. Special notice letters will be issued and negotiations will begin after completion of this Record of Decision.

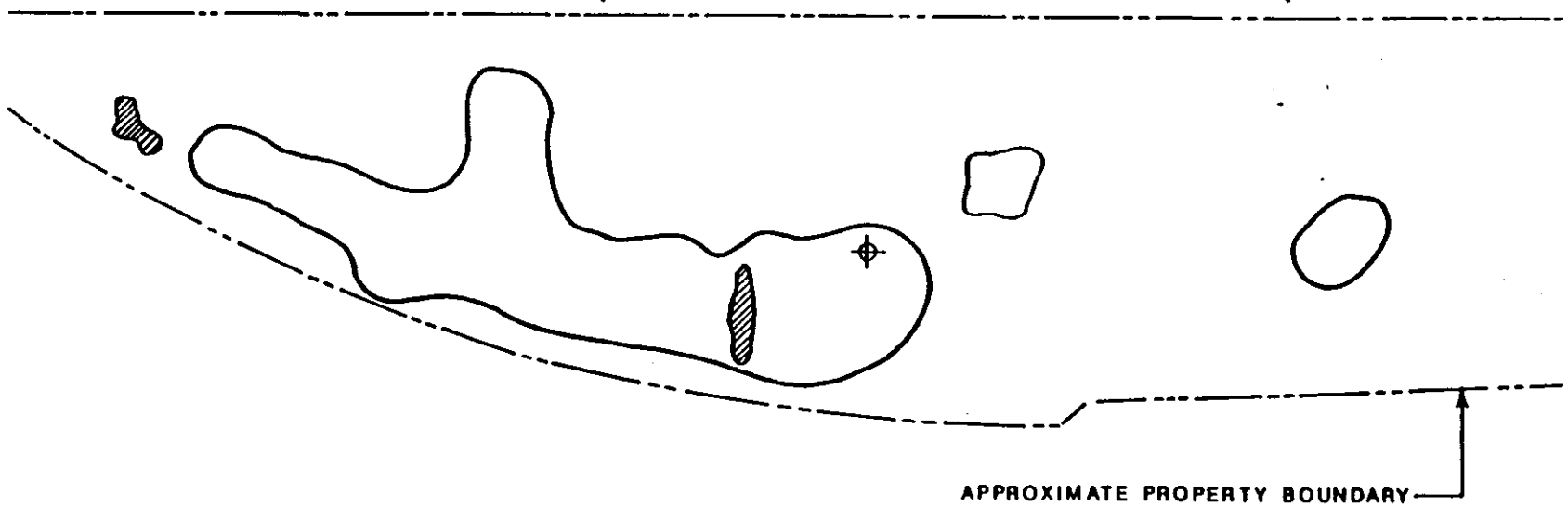
III. COMMUNITY RELATIONS ACTIVITIES

USEPA and IEPA have been conducting community relations activities at the site since early 1983. During the original RI/FS, IEPA developed a community relations plan, and in accordance with that plan, IEPA conducted small group meetings, public meetings, and issued fact sheets and letters to residents. USEPA has conducted community relations activities since the start of the STI in 1986.

A proposed plan was released to the public on October 5, 1990, informing residents that the STI report, EE/CA, and RAAE, along with other documents comprising the Administrative Record for the site, were available at the public information repository at the Rockford Public Library. The Administrative Record index is included as Appendix A. A public comment period was held from October 5, 1990, to November 5, 1990, and a public meeting was held on October 18, 1990, to discuss the proposed remedial action with residents. Public comments and USEPA responses are included as Appendix B.

IV. SCOPE AND ROLE OF RESPONSE ACTION

This response action is the second of three potential operable units. The first operable unit, set forth in the September 1985 ROD, called for provision of an interim alternate water supply (HCTUs) to downgradient affected residents, and treatment of the sludge disposal areas on-site. The HCTU portion of the remedial



EXPLANATION

- Approximate Boundary of Excavated Waste Mounds
- Remaining Soil/Sludge Area (Approximate Locations)
- Approximate Location of Two Tanks Containing Sludge

N

0 75 150

Scale in Feet

Harding Lawson Associates
Engineering and
Environmental Services

Previous Waste Mound Locations and Remaining Soil/Sludge Areas
Acme Solvents Reclaiming, Inc., Site
Winnebago County, Illinois

FIGURE
2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
RLB	17683,020.10		2/90	

action has been completed. The waste disposal areas, however, were not remediated in a manner consistent with USEPA's ROD, and approximately 6,000 tons of soil/sludge were not addressed during the PRP cleanup.

This operable unit will address the remaining waste disposal areas as well as all remaining soil and bedrock contamination on-site. Contaminated groundwater will also be addressed except as discussed below.

The third and final operable unit will address an area of groundwater contamination at the southeast corner of Pagel's Pit Landfill if it is determined that Acme Solvents is wholly or partially responsible for this contamination. Further studies are needed to determine the source of this contamination, and a ROD will address this area as soon as USEPA has determined the source of this contamination.

V. SITE CHARACTERIZATION

Results of the STI have shown that groundwater, soil, and subsurface bedrock on and around the Acme Solvent site have been contaminated. Volatile organic compounds (VOCs) are the principal contaminants found in all affected media. Semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and inorganic contaminants have also been detected in soils and waste areas.

Waste Areas

The STI identified two remaining waste disposal areas on-site (see Fig. 2). The first waste area consists of approximately 4,000 tons of soil and sludges and is located in approximately the center of the site. Two 8000-gallon storage tanks containing liquids and sludges are also present near this area. Sampling in this area was performed during the PRP removal action in 1986 without USEPA supervision. Waste area samples showed total VOCs as high as 14,700 mg/kg and total PCBs as high as 52 mg/kg. Sampling of tank contents showed PCBs as high as 138 mg/kg and lead as high as 2,800 mg/kg. EP Toxicity testing of tank contents showed levels below regulatory standards. These data are not included in the data summary tables because USEPA has no information about its quality.

During the course of the STI, a second approximately 200 by 40-foot waste area was discovered in the northwest corner of the Acme site. Fifty-six samples were collected from 29 test pits and approximately 100 rusted one-gallon pails were removed in 1990. VOCs, SVOCs, and PCBs were detected in test pit samples. Metals were detected above background levels in all samples (see Table 1).

TABLE 1

CONTAMINANTS DETECTED IN SOIL

NORTHWEST AREA

Contaminants Detected	Maximum Concentration[1]	Frequency of Detection[2]	Background Value[3]
VOCs (ug/kg)			
1,1,1-Trichloroethane	10	1/56	NA
1,2-Dichloroethene	44,000	6/56	NA
Carbon Disulfide	0.5	6/56	NA
Chloroform	3	1/56	NA
Chloromethane	2	1/56	NA
Ethylbenzene	290,000	7/56	NA
Tetrachloroethene	31,000	33/56	NA
Total Xylenes	1,500,000	9/56	NA
Trichloroethene	4,500	11/56	NA
SVOCs (ug/kg)			
2-Methylnaphthalene	8,600	3/7	NA
Bis(2-ethylhexyl)phthalate	1,300,000	7/7	NA
Butylbenzyl phthalate	190,000	4/7	NA
Di-n-butyl phthalate	480,000	4/7	NA
Isophorone	14,000	1/7	NA
Naphthalene	320,000	4/7	NA
Phenol	180	1/7	NA
PCBs (ug/kg)			
Total PCBs	290,000	6/7	NA
Inorganics (mg/kg)			
Aluminum	17,900	6/7	2,500
Arsenic	20.9	6/7	3.5
Barium	1,190	6/7	22
Chromium	14,500	7/7	5.9
Iron	54,900	NA[4]	NA
Lead	52,500	7/7	9.1
Zinc	4,440	7/7	8.5

TABLE 1 (Con't)

ALL OTHER SOILS

Contaminants Detected	Maximum Concentration	Frequency of Detection	Background Value
VOCs (ug/kg)			
1,2-Dichloroethene (cis and trans)	6,000	2/21	NA
1,1,1-Trichloroethane	5.50	1/21	NA
Trichloroethene	3,100	1/21	NA
4-Methyl-2-pentanone	7,400	2/21	NA
Tetrachloroethene	3,400	5/21	NA
Ethylbenzene	29,000	2/21	NA
Total Xylenes	210,000	4/21	NA
SVOCs (ug/kg)			
Isophorone	1,035	2/21	NA
Naphthalene	170	1/21	NA
Phenanthrene	180	2/21	NA
2-Methylnaphthalene	130	3/21	NA
Fluoranthene	7	1/21	NA
Pyrene	62	4/21	NA
Benzo(b)fluoranthene	8	1/21	NA
Di-n-butylphthalate	13,000	1/21	NA
Bis(2-ethylhexyl)phthalate	59,000	7/21	NA
PCBs (ug/kg)			
Aroclor-1254	4,000	4/21	NA
Inorganics (mg/kg)			
Aluminum	6,700	21/21	2,500
Arsenic	8.8	21/21	3.5
Barium	230	21/21	22
Chromium	260	21/21	5.9
Lead	2,800	21/21	9.1
Zinc	220	21/21	8.5

[1]Data qualifiers not included
[2]For inorganics, indicates detection above established background
[3]Background established from one soil sample taken from the eastern portion of the site, in an area unaffected by disposal operations
[4]Background value for iron not established

NA = not available

An estimated 2,000 tons of soils and sludges is present in the northwest area. A total of approximately 6,000 tons of soil/ sludge material remains on-site in the two waste areas. Most contaminant concentrations were one to two orders of magnitude higher in the waste areas than in other site soils.

Soil Investigation

Immediately after the 1986 removal, soil samples were collected (without USEPA or IEPA supervision) from sidewalls, stockpiled soils, backfilled soils, and exposed bedrock. Analytical results of soil samples indicated total VOC concentrations from 0.6 - 275 mg/kg; and total SVOC concentrations from 0.1 - 330 mg/kg. Results of bedrock samples for total VOCs ranged from 0.6 - 1600 mg/kg and for total SVOCs from 180 - 5320 mg/kg. The primary VOCs identified in these soil and bedrock samples were tetrachloroethene (PCE), 1,1,1 trichloroethane (111-TCA), trichloroethene (TCE), total xylenes, toluene, and ethylbenzene. The primary SVOCs identified were isophorone, naphthalene, and phenol. These data were not included in Table 1 because USEPA has no information about its quality.

In 1988, 21 composite and discrete soil samples were collected within and adjacent to the waste areas excavated in 1986. Results are summarized in Table 1. Nine VOCs, seven SVOCs, and PCBs were detected. Six metals exceeded background concentrations.

Bedrock Gas

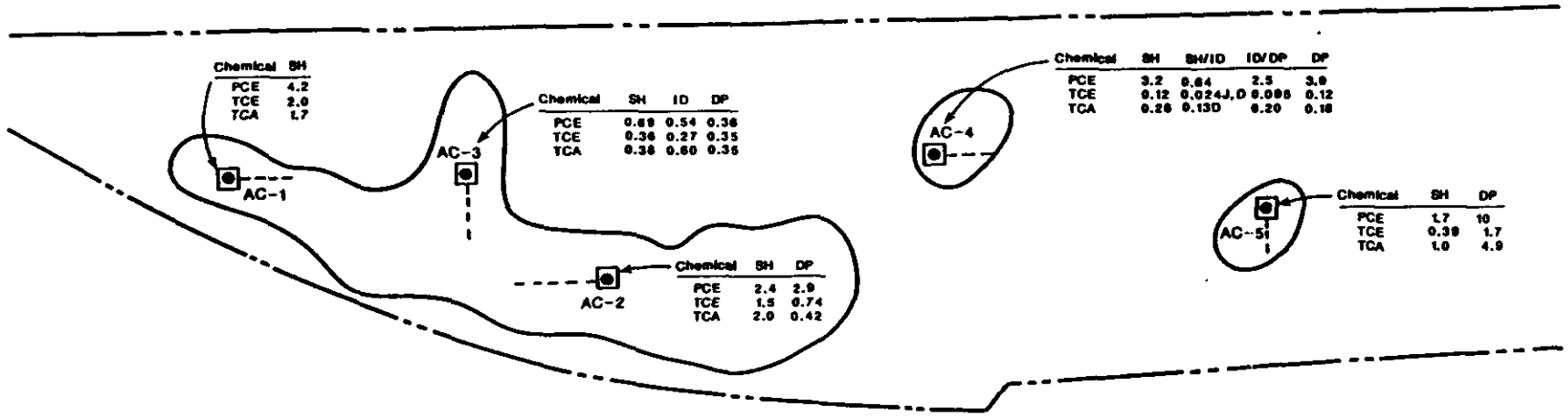
Twelve bedrock gas probes were installed in five angled coreholes beneath previously excavated waste areas. Probes were sampled quarterly for one year to determine VOC concentrations in the bedrock gas. Nine VOCs were detected. PCE, TCE, and TCA were detected in the highest concentrations and greatest frequency in all 12 bedrock gas probes (see Fig. 3).

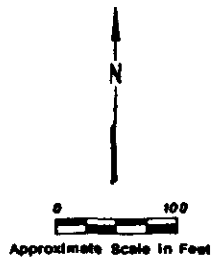
Hydrogeology

The following geologic units exist below the Acme Solvents Site and surrounding area:

- Unconsolidated deposits
- Galena-Platteville Dolomite
- Glenwood Formation
- St. Peter Sandstone Formation

Unconsolidated deposits range from 0 to 6 feet in thickness under the Site, increasing to about 85 feet south of the Acme Site, and are unsaturated under the site. The Galena-Platteville aquifer, which is approximately 220 feet thick, and the St. Peter Sandstone aquifer, which has an average thickness of 320 feet,





EXPLANATION

PCE Tetrachloroethane
TCE Trichloroethene
TCA 1,1,1-Trichloroethane

Bedrock Core Hole Location Showing Direction of Drilling

Approximate Potentially Affected Area Boundaries

SH Shallow Depth Interval
ID Intermediate Depth Interval
DP Deep Depth Interval
D Compound Detected

All Vapor Phase Concentrations in ppm(v/v)

J Estimated Concentration at or below the CRQL

Harding Lawson Associates
Engineering and Environmental Services

Bedrock Core Hole Locations with Vapor Concentrations of VOCs

Acme Solvents Reclaiming, Inc., Site
Winnebago County, Illinois

FIGURE 3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
RLB	17683,020.10		4/90	

are considered the two major hydrostratigraphic units (HSU) beneath the site. The Galena-Platteville HSU and St. Peter Sandstone HSU are separated by the Glenwood Formation. The Glenwood Formation is comprised of interbedded dolomitic shale and quartz sandstone. It has an average thickness of 40 feet and is moderately to little fractured, with the exception of the basal beds, which are highly fractured. The Glenwood Formation partially restricts flow between the two HSUs. Unconfined flow within the Galena-Platteville aquifer is generally to the west and south through fractures and solution features. Such flow can be difficult to characterize and is generally complex. Confined flow in the St. Peter Sandstone aquifer is intergranular. A typical water table map for the Galena-Platteville aquifer is shown in Fig. 4.

Beginning in 1988, groundwater samples were collected from new and previously installed monitoring wells. These included 28 wells completed in the Galena-Platteville aquifer, and four wells completed in the St. Peter Sandstone aquifer. Additionally, beginning in 1987, groundwater samples were taken from private water supply wells at 16 residences, including the five residences where HCTUs were installed.

Twelve VOCs, seven SVOCs, and three metals (above background) were detected in the Galena-Platteville monitoring wells (see Table 2). Figure 5 shows the distribution of 1,2-dichloroethene, the contaminant found most extensively in the Galena-Platteville aquifer. Ten VOCs were detected in the residential water supply wells (see Table 2). Of the four wells completed in the St. Peter Sandstone aquifer, only MW201A showed VOC contamination. This well is screened mostly through the Glenwood Formation; the screen extends only a few feet into the St. Peter aquifer. Only low levels of VOCs were found in MW210A, and no VOC contamination was found in any of the other St. Peter wells (see Table 2).

Contaminant Migration

Sampling data verified that sludge material in waste areas has contaminated near-surface soils. Additionally, the bedrock gas sampling program conducted in Galena-Platteville subsurface fractures has documented bedrock gas contamination from either the leaching of contaminants through soils into fractures or diffusion and volatilization of contaminated groundwater into fractures, or both. Bedrock gas VOC concentrations were somewhat higher than would be predicted by volatilization of VOCs from groundwater, indicating that VOCs in bedrock gas may contribute to groundwater contamination.

Subsequent leaching of VOCs has affected groundwater in the Galena-Platteville aquifer and produced contaminant plumes which are migrating off-site. Elevated levels of SVOCs and metals were also detected in the aquifer, however, PCBs do not appear to have

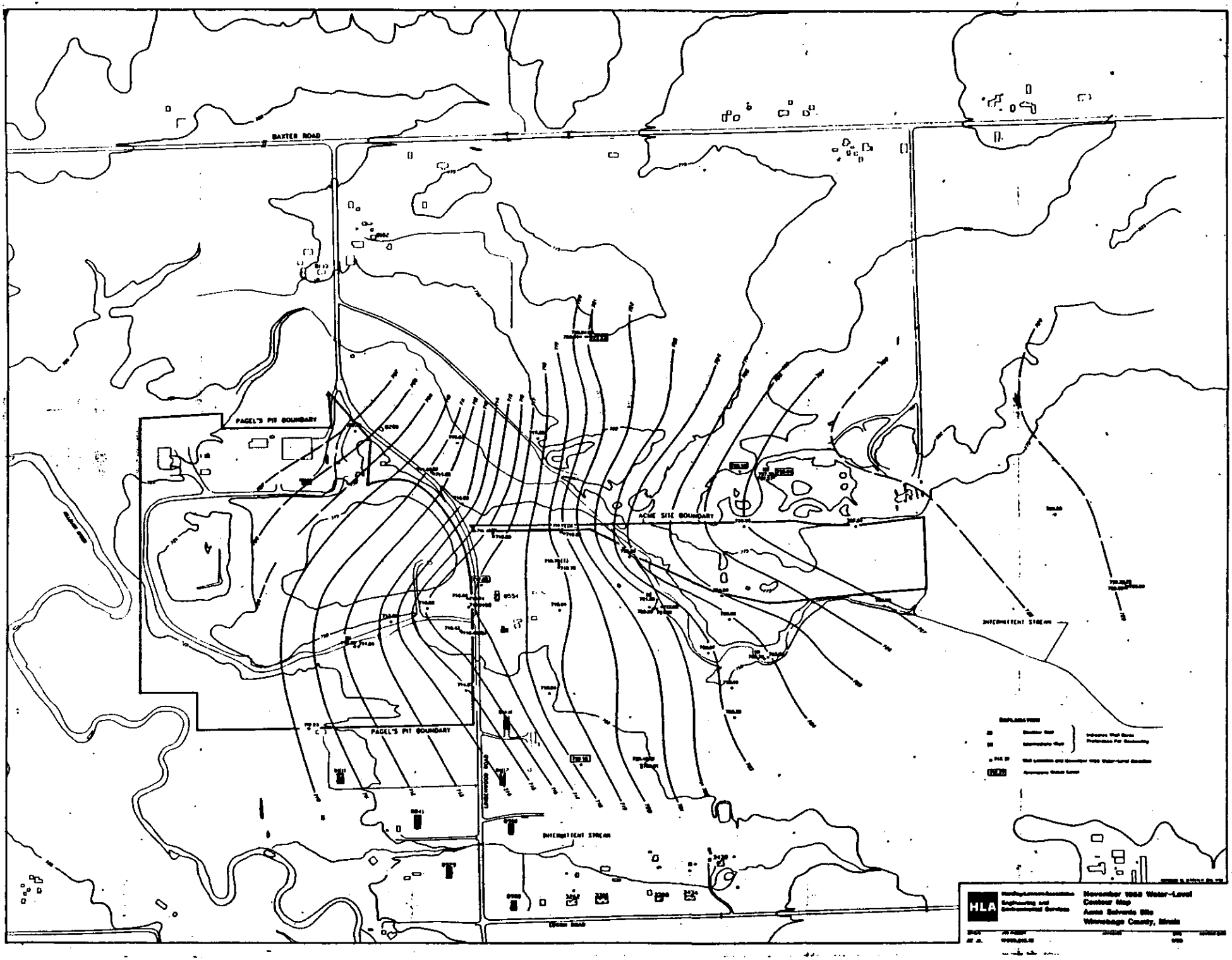

BAXTER ROAD
PAGEL'S PIT BOUNDARY
ACME SITE BOUNDARY
INTERMITTENT STREAM
PAGEL'S PIT BOUNDARY
INTERMITTENT STREAM
HLA

Figure 4

TABLE 2

CONTAMINANTS DETECTED IN GROUNDWATER

GALENA-PLATTEVILLE

Contaminants Detected	Maximum Concentration[1]	Frequency of Detection	Background Range[2]
VOCs (ug/l)			
Vinyl Chloride	1000	13/118	NA
1,2-Dichloroethene	2400	40/118	NA
1,1-Dichloroethene	28	18/118	NA
1,1-Dichloroethane	405	23/118	NA
1,2-Dichloroethane	42	5/118	NA
1,1,1-Trichloroethane	265	32/118	NA
1,2-Dichloropropane	29	14/118	NA
Trichloroethene	260	31/118	NA
Benzene	39	12/118	NA
Tetrachloroethene	480	39/118	NA
Ethylbenzene	170	9/118	NA
Total Xylenes	1100	1/118	NA
SVOCs (ug/l)			
Phenol	35	1/118	NA
1,4-Dichlorobenzene	15	8/118	NA
1,2-Dichlorobenzene	1	2/118	NA
Isophorene	4	3/118	NA
Benzoic Acid	2	1/118	NA
Naphthalene	13	8/118	NA
N-Nitrosodiphenylamine	1	1/118	NA
Inorganics (mg/l)			
Arsenic	0.038	55/118	<0.001 - 0.008
Barium	0.396	40/118	<0.05 - 0.13
Chromium	0.032	1/118	<0.01 - 0.032
Iron	11.0	23/118	<0.10 - 0.26
Lead	0.015	10/118	<0.005 - 0.005
Zinc	7.73	102/118	0.070 - 4.3

TABLE 2 (Con't)

RESIDENTIAL (UNTREATED)

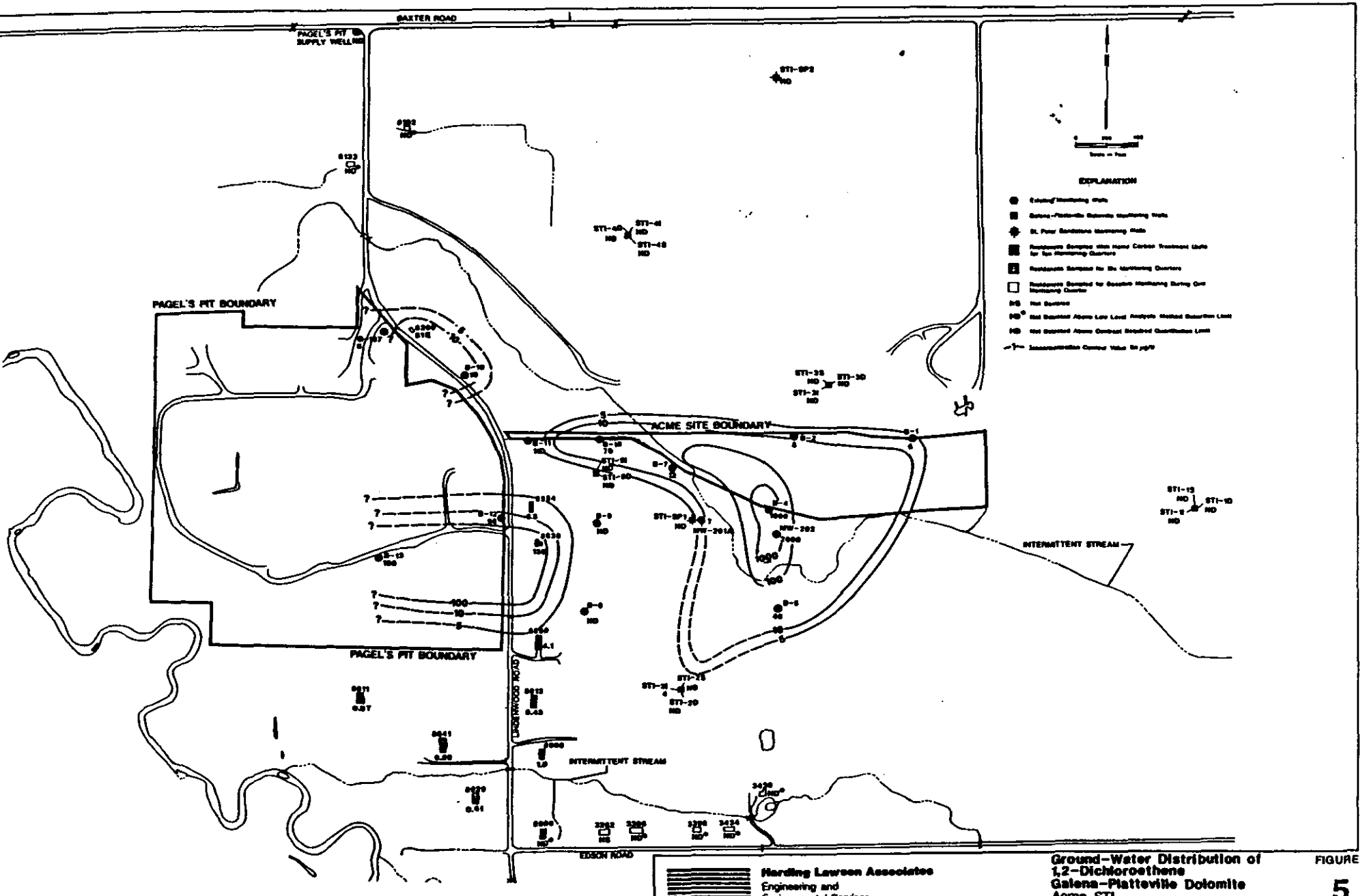
Contaminants Detected	Maximum Concentration	Frequency of Detection
VOCs (ug/l)		
Vinyl Chloride	8	14/75
1,1-Dichloroethene	2.5	4/75
1,1-Dichloroethane	14	28/75
1,2-Dichloroethene	170	58/75
1,1,1-Trichloroethane	12	42/75
1,2-Dichloropropane	2	15/75
Trichloroethene	13	42/75
Benzene	2	6/75
Tetrachloroethene	10	58/75
Chlorobenzene	1	4/75
Inorganics (mg/l)		
Arsenic	0.002	1/46
Barium	0.198	30/46
Chromium	0.010	1/46
Iron	0.921	13/46
Lead	0.033	5/46
Zinc	0.593	22/46

ST. PETER

VOCs (ug/l)		
1,2-Dichloroethene	8	4/22
Trichloroethene	6	4/22
Inorganics (mg/l)		
Arsenic	0.003	2/22
Barium	0.104	6/22
Zinc	1.69	17/22

[1]Data qualifiers not included
[2]The background range for the Galena-Platteville aquifer was established from samples taken from the STI-1, STI-3, and ST1-4 well clusters (see Fig. 5)

NA = not available



Harding Lawson Associates
Engineering and Environmental Services

Ground-Water Distribution of 1,2-Dichloroethene
Galena-Platteville Dolomite
Acme STI
Winnebago County, Illinois

FIGURE **5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
AT Jr.	17683,012.10		10/89	

migrated to groundwater. Sampling has indicated that the St. Peter Sandstone aquifer has not been adversely affected.

Based on the specific physical characteristics of the site and the known contaminant distribution, groundwater flow is considered the primary migration pathway.

Surface water samples were not collected because the intermittent stream that crosses the site was dry during the STI. It is believed that any past and future flow in the nearby stream channel would recharge the groundwater system rather than provide a conduit for groundwater discharge. Therefore, contaminated groundwater is not believed to have migrated off-site through this intermittent stream channel.

VI. SUMMARY OF SITE RISKS

An endangerment assessment (EA) was developed for the Acme Solvents site in accordance with USEPA's 1989 Risk Assessment Guidance for Superfund (RAGS). The purpose of an EA is to analyze the potential adverse health effects, both current and future, posed by hazardous substance releases from a site if no action were taken to mitigate such a release. The EA consists of data evaluation and selection of contaminants of concern, toxicity assessment, exposure assessment, and risk characterization.

Selection of Contaminants of Concern

Groundwater and soil data were evaluated and contaminants of concern were selected based on carcinogenicity, detection frequency, comparison with background concentrations, toxicity, physicochemical properties, concentration, and grouping chemicals by similar characteristics. Based on this analysis, the following chemicals were selected as contaminants of concern at the Acme site:

GROUNDWATER	SOILS
VOCs	VOCs
1,1,1-trichloroethane	1,1,1-trichloroethane
1,1-dichloroethene	1,2-dichloroethene (cis and trans)
1,2-dichloroethene (cis and trans)	tetrachloroethene
1,1-dichloroethane	trichloroethene
benzene	ethylbenzene
chloroform	total xylenes
tetrachloroethene	
trichloroethene	
vinyl chloride	
SVOCs	SVOCs
naphthalene	bis(2-ethylhexyl)phthalate

Pesticides/PCBs	Pesticides/PCBs
none	Arochlor 1254
Inorganics	**Inorganics**
none	lead

Toxicity Assessment

The purpose of the toxicity assessment is to weigh available evidence regarding the potential for particular contaminants to cause adverse effects in exposed individuals and to provide, where possible, an estimate of the relationship between the extent of exposure to a contaminant and the increased likelihood and/or severity of adverse effects, including carcinogenic and noncarcinogenic effects.

Ten of the fifteen contaminants of concern are carcinogens. USEPA's Guidelines for Carcinogen Risk Assessment uses a two-part evaluation in assessing the toxicity of carcinogens, first assigning a weight of evidence classification, which evaluates the sufficiency of data regarding a contaminant's carcinogenicity, and then developing a cancer potency factor (CPF) based on available information about dose response relationships for that carcinogen. CPFs, which are expressed in $(mg/kg/day)^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to provide an upper bound estimate of the excess lifetime cancer risk associated with exposure at the intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the CPF. Use of this approach makes underestimation of the actual cancer risk highly unlikely. CPFs are derived from results of human epidemiological studies or chronic animal bioassays to which animal-to-human extrapolation and uncertainty factors have been applied. The weight of evidence classification and CPF for each of the indicator contaminants is shown in Table 3.

Ten of the fifteen contaminants of concern have noncarcinogenic toxic effects. USEPA has developed chronic reference doses (RfDs) to indicate the potential for adverse health effects from exposure to chemicals exhibiting noncarcinogenic effects. RfDs, which are expressed in units of mg/kg-day, are estimates of lifetime daily exposure levels for humans, including sensitive individuals. Estimated intakes of chemicals from environmental media can be compared to the RfD. RfDs are derived from human epidemiological studies or animal studies to which uncertainty factors have been applied. These uncertainty factors help ensure that the RfDs will not underestimate the potential for adverse health effects to occur. RFDs for noncarcinogenic effects for the contaminants of concern are shown in Table 3.

TABLE 3

TOXICITY ASSESSMENT
ACME SOLVENT RECLAIMING, INC. CONTAMINANTS OF CONCERN

CONTAMINANT	Weight of evidence classification[1]	Oral CPF $(mg/kg/day)^{-1}$	Oral RfD mg/kg/day
VOCs			
benzene	A	2.9×10^{-2}	
chloroform	B2	6.1×10^{-3}	
1,1-dichloroethane	B2	9.1×10^{-2}	0.1
1,1-dichloroethene	C	0.6	9×10^{-3}
1,2-dichloroethene (cis and trans)			0.02[2]
ethylbenzene			0.1
tetrachloroethene	B2	5.1×10^{-2}	0.01
1,1,1-trichloroethane	D		9×10^{-2}
trichloroethene	B2	1.1×10^{-2}	
vinyl chloride	A	2.3	
total xylenes			2
SVOCs			
bis(2-ethylhexyl)phthalate	B2	0.014	0.02
naphthalene			0.4
Pesticides/PCBs			
Arochlor 1254	B2	7.7	
Inorganics			
lead	B2	NA	NA

[1] USEPA's weight of evidence system classifies carcinogens as follows:
- A: Human carcinogen
- B1: Probable human carcinogen (limited human data available)
- B2: Probable human carcinogen (sufficient animal data, inadequate human data)
- C: Possible human carcinogen
- D: Not classifiable as to human carcinogenicity

[2] derived from an adjusted acceptable daily intake of 350 ug/l

NA = not available

It is important to note that risks due to exposure to lead in soils and waste areas were not evaluated because USEPA has not developed a CPF or RfD for lead. Until a CPF or RfD is developed, USEPA is using the Agency for Toxic Substances and Disease Registry's finding that lead levels of 500 to 1,000 mg/kg in soils can cause increased blood lead levels in children as a basis for assessing risks due to lead. Lead concentrations in waste areas and in some other site soils exceed 1,000 mg/kg and thus may result in adverse health effects under the scenarios discussed below.

Exposure Assessment

The exposure assessment identified potential pathways for contaminants of concern to reach the receptors and the estimated contaminant concentration at the point of exposure. Estimated exposures to soil and groundwater were calculated based on a reasonable maximum exposure (RME) scenario, in accordance with the National Contingency Plan (NCP, 40 CFR Part 300), and an average exposure scenario, under both current and projected future land use conditions. The exposure pathways evaluated in the EA are summarized in Table 4.

Current-Use Conditions - Residential and Agricultural

Land around the Acme site is predominately used for agriculture and low-density, single-family homes. Twenty-four homes have been identified along Baxter, Edson, and Lindenwood Roads near the Acme site (see Fig. 5). All use private wells for water supply, and those along Lindenwood and Edson Roads are downgradient of waste disposal areas. Five residences have well water contaminated with VOCs at levels exceeding USEPA's Health Advisories. These residences were supplied with bottled water in 1981 and with HCTUs in 1987. Two residences with HCTUs also continue to receive bottled water under a voluntary agreement with Pagel's Pit Landfill operators.

The current-use exposure assessment evaluated dermal, oral, and inhalation exposure to groundwater for cooking, drinking water, and other domestic uses such as showering. Use of water for lawns, agricultural land, fruits and vegetables, and care of domestic livestock was also evaluated. Use of well water with and without treatment by HCTUs was evaluated.

Current-Use Conditions - Recreational

The exposure assessment evaluated migration of contaminated groundwater to Killbuck Creek and potential dermal contact through swimming and fishing, or oral exposure through incidental ingestion of surface water or consumption of fish. Trespassing on-site would result in dermal, inhalation, and ingestion exposures to on-site soils.

TABLE 4

POTENTIAL EXPOSURE PATHWAYS QUANTIFIED UNDER THE CURRENT- AND FUTURE-USE SCENARIOS

Exposure Pathway	Exposure Medium	Exposure Route
<u>Residential Setting</u>		
Untreated Drinking Water	Water	Ingestion
Domestic Untreated Water Use	Air	Inhalation
<u>Agricultural Setting</u>		
Beef Consumption	Food	Ingestion
Dairy Consumption	Food	Ingestion
<u>Recreational Setting</u>		
Swimming in Kishwaukee River	Water	Ingestion
Swimming in Kishwaukee River	Water	Dermal Contact
Fish From Killbuck Creek	Food	Ingestion
<u>On-Site Setting</u>		
Airborne VOC and Particulates	Air	Inhalation
Airborne Particultes	Air	Ingestion
Soil	Soil	Dermal Contact
Soil	Soil	Ingestion
Untreated Drinking Water*	Water	Ingestion
Domestic Untreated Water Use*	Air	Inhalation

* for future-use scenarios only

Future-Use Conditions

The future-use scenario evaluated future migration of contaminants to the existing homes through a groundwater model using the same exposure scenarios described above. In addition, potential dermal, inhalation, and ingestion exposures to on-site soil and groundwater if a residence were constructed on the site were evaluated. This future-use scenario is consistent with current land use near the site and zoning restrictions, which allows one single family dwelling per 40 acres.

Chronic daily intakes of contaminants were calculated for the exposure pathways described above using methods described in RAGS and further detailed in the Acme Solvents EA.

Risk Characterization

The risk characterization combines the chronic daily intakes developed in the exposure assessment with the toxicity information collected in the toxicity assessment to assess potential human health risks from contaminants at the site. For carcinogens, results of the risk assessment are presented as an excess lifetime cancer risk, or the probability that an individual will develop cancer as a result of a 70-year lifetime exposure to site contaminants. These risks are probabilities that are generally expressed in scientific notation (e.g. 1×10^{-6} or 1E-06). An excess lifetime cancer risk of 1×10^{-6} indicates that, as a plausible upper bound, an individual has a one in one million chance of developing cancer as a result of exposure to conditions at a site.

Potential concern for noncarcinogenic effects of a single contaminant in a single medium is expressed as the hazard quotient (HQ) (or the ratio of the estimated intake derived from the contaminant concentration in a given medium to the contaminant's reference dose). By adding the HQs for all contaminants within a medium or across all media to which a given population may reasonably be exposed, the Hazard Index (HI) can be generated. The HI provides a useful reference point for gauging the potential significance of multiple exposures within a single medium or across media.

Results of the risk characterization are detailed in Table 5 and discussed below. Although both reasonable maximum exposure (RME) and average case scenarios were developed for the EA, only the RME will be discussed, because the NCP requires that the RME be used in developing protective exposure levels.

Current-Use Conditions

The greatest calculated potential risk under current-use conditions was from drinking and domestic use of untreated

TABLE 5

SUMMARY OF POTENTIAL RISKS
THEORETICAL UPPER-BOUND EXPOSURE

Exposure Pathway	Exposure Route	Risk from A Carcinogen	Risk from B2 Carcinogen	Risk from C Carcinogen	Total Cancer Risk	Chronic Hazard Index	Source Risk Table
RESIDENTIAL -- CURRENT							
Drinking Untreated Supply	Ingestion	5E-05	8E-06	4E-06	6E-05	1.5E-01	5-4
Domestic Untreated Supply Use	Inhalation	1E-04	2E-05	8E-06	1E-04	3.0E-01	NA
AGRICULTURAL -- CURRENT							
Beef Consumption	Ingestion	2E-10	1E-09	9E-12	2E-09	2.0E-05	5-5
Dairy Consumption	Ingestion	8E-11	5E-10	4E-11	7E-10	8.7E-03	5-6
RECREATION -- CURRENT DRAFT							
Swimming in Kishwaukee	Ingestion	5E-15	3E-13	NAR	3E-13	1.1E-08	5-8
Swimming in Kishwaukee	Dermal Contact	3E-15	2E-13	NAR	2E-13	1.9E-09	5-9
Fish from Killbuck	Ingestion	2E-09	3E-07	NAR	3E-07	2.4E-02	5-10
ON-SITE -- CURRENT							
Airborne VOC/Particulates	Inhalation	NAR	6E-09	NAR	6E-09	9.8E-03	5-12
Airborne Particulates	Ingestion	NAR	3E-08	NAR	3E-08	1.8E-05	5-13
Soil	Dermal Contact	NAR	1E-06	NAR	1E-06	1.2E-03	5-14
Soil	Ingestion	NAR	3E-07	NAR	3E-07	7.0E-04	5-15
COMBINED RESIDENTIAL -- CURRENT*							
Untreated Supply	Multiple	2E-04	3E-05	1E-05	2E-04	4.8E-01	NA
OFF-SITE RESIDENTIAL -- FUTURE							
Drinking Untreated Supply	Ingestion	5E-04	1E-05	2E-06	5E-04	2.6E-01	5-16
Domestic Untreated Supply Use	Inhalation	1E-03	2E-05	4E-06	1E-03	5.2E-01	NA
OFF-SITE AGRICULTURAL -- FUTURE							
Beef Consumption	Ingestion	2E-09	2E-09	4E-12	4E-09	2.7E-05	5-17
Dairy Consumption	Ingestion	8E-10	7E-10	1E-11	1E-09	1.1E-02	5-18
OFF-SITE RECREATION -- FUTURE							
Swimming in Kishwaukee	Ingestion	1E-11	1E-12	NAR	1E-11	6.2E-08	5-19
Swimming in Kishwaukee	Dermal Contact	7E-12	6E-13	NAR	8E-12	1.0E-08	5-20
Fish from Killbuck	Ingestion	1E-05	1E-06	NAR	1E-05	1.4E-01	5-21
ON-SITE RESIDENTIAL -- FUTURE							
Airborne VOC/Particulates	Inhalation	NAR	3E-06	NAR	3E-06	6.7E-02	5-22
Airborne Particulates	Ingestion	NAR	1E-05	NAR	1E-05	8.0E-03	5-23
Soil	Dermal Contact	NAR	3E-05	NAR	3E-05	3.7E-02	5-24
Soil	Ingestion	NAR	9E-06	NAR	9E-06	2.1E-02	5-25
Drinking Untreated Water	Ingestion	1E-02	5E-04	1E-04	1E-02	9.6E+00	5-26
Domestic Untreated Water Use	Inhalation	2E-02	1E-03	2E-04	2E-02	1.9E+01	NA
COMBINED RESIDENTIAL -- FUTURE*							
Untreated Supply -- Off-Site	Multiple	2E-03	3E-05	6E-06	2E-03	9.3E-01	NA
Untreated Supply -- On-Site	Multiple	3E-02	2E-03	3E-04	3E-02	2.9E+01	NA

* Combined pathways include all residential + agricultural + fish consumption.
NA = Not applicable
NAR = No applicable risk

groundwater at the homes along Lindenwood Road. Inhalation and ingestion exposures to contaminated well water result in a lifetime excess cancer risk of 1.6×10^{-4}. Vinyl chloride contributes more than 81 percent of this risk, with the remaining VOCs accounting for the remaining risk.

For on-site (trespassing) exposures, incidental ingestion and dermal contact with soil contribute more than 98 percent of the total lifetime excess cancer risk of 1.3×10^{-6}, primarily because of exposure to PCBs. Inhalation exposure pathways were insignificant.

Risks from swimming and fishing in Killbuck Creek were insignificant, as were risks from consumption of agricultural products.

Future-Use Conditions

If no action were taken to prevent exposure to or migration of contaminated groundwater (i.e., the HCTUs were discontinued), the lifetime excess cancer risk from ingestion and inhalation exposure would increase to 1.5×10^{-3} for the homes along Lindenwood Road. Again, most of this risk is from vinyl chloride.

If a home with a private well were built on-site, residents would be exposed to a lifetime excess cancer risk of 3×10^{-2}, mainly from ingestion and inhalation exposure to groundwater contaminated with vinyl chloride. Potential risks from dermal contact and incidental ingestion of soils would result in a lifetime excess cancer risk of 4.9×10^{-5}, mainly from exposure to PCBs. Future on-site residents would also be exposed to noncarcinogenic adverse health effects, particularly from inhalation exposure to 1,2-dichloroethene during household use of well water.

Consumption of agricultural products and swimming in Killbuck Creek result in insignificant risk, however, the lifetime excess cancer risk for ingestion of fish caught in Killbuck Creek if contaminated groundwater continues to migrate towards the creek is 1×10^{-5}.

Risks due to Waste Areas

Risks due to exposure to the waste pile left from the 1986 cleanup (see Fig. 2) were developed separately using the methods described above. Exposure scenarios and risk calculations are shown in Table 6. The lifetime excess cancer risk due to dermal contact and incidental ingestion of soils is 3.8×10^{-5} for the current use (trespassing) scenario and 1.2×10^{-3} for the future-use (residential use of site) scenario, mainly due to exposure to PCBs. Carcinogenic risks from exposure to waste areas were

TABLE 6

WASTE AREA RISK ASSESSMENT SUMMARY

EXPOSURE PATHWAYS QUANTIFIED UNDER
THE CURRENT- AND FUTURE-USE SCENARIOS

EXISTING ON-SITE WASTE MOUND SOILS

Exposure Pathway	Exposure Medium	Exposure Route
Airborne VOC and Particulates	Air	Inhalation
Airborne Particulates	Air	Ingestion
Soil	Soil	Dermal Contact
Soil	Soil	Ingestion

SUMMARY OF POTENTIAL RISKS
EXISTING ON-SITE WASTE MOUND SOILS

THEORETICAL UPPER BOUND EXPOSURE

Exposure Pathway	Exposure Route	Total Cancer Risk	Chronic Hazard Index
<u>ON-SITE — CURRENT</u>			
Airborne VOC/Particulates	Inhalation	8E-07	2.6
Airborne Particulates	Ingestion	1E-09	NA
Soil	Dermal Contact	3E-05	NA
Soil	Ingestion	7E-06	NA
<u>ON-SITE RESIDENTIAL — FUTURE</u>			
Airborne VOC/Particulates	Inhalation	7E-05	2.6
Airborne Particulates	Ingestion	1E-05	NA
Soil	Dermal Contact	9E-04	NA
Soil	Ingestion	2E-04	NA

greater than one order of magnitude higher than those for other on-site soils. Under both scenarios, inhalation exposure to airborne contaminants from the waste areas (particularly xylenes) could result in noncarcinogenic adverse health effects.

Risks from exposure to northwest area soils were not evaluated because analytical data were not available at the time the EA was written but are expected to be similar to those for the waste pile. Risks due to the approximately 8,000 gallons of liquids and sludges in the tanks on-site were not evaluated. The tanks are securely closed, so the potential for human or animal exposure to the contents is low. However, the tanks are partially buried, and the potential for leaks or ruptures is unknown.

Environmental Risks

Two types of ecosystems are found around the Acme Solvents site, the tall prairie grassland ecosystem (comprising most of the Acme Solvents site) and the riparian forest ecosystem (including the ecosystem around Killbuck Creek). Chemicals detected in surface soils at the Acme Solvents site may enter into the food chain of the grassland ecosystem via ingestion by earth burrowing organism, such as earthworms, and/or uptake by grass roots, and may bioaccumulate. Information necessary to assess potential adverse environmental effects due to direct or indirect exposure to contaminants was not available. However, the lack of large quantities of remaining chemical-affected soils indicates that the potential for environmental risk is low. Also, groundwater modelling data indicate that concentrations of contaminants entering Killbuck Creek from groundwater are low, therefore, adverse effects to the aquatic ecosystem are also expected to be low.

According to information from the Winnebago County Forest Preserve, no threatened, rare, or endangered species and/or associated habitats are known to exist on or near the Acme Solvents site.

The results of the EA show that actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

VII. DESCRIPTION OF ALTERNATIVES

Based on the findings of the STI and EA, the following remedial action objectives were developed for the Acme Solvents site:

- Reduce human health risks due to dermal, ingestion, or inhalation exposure to contaminants in the two 8,000-gallon tanks, the waste pile remaining from the 1986 PRP cleanup,

and to the soils/sludges in the northwest area of the site, as well as all other contaminants remaining in soils after the 1986 cleanup.

- Reduce the potential for mobile contaminants, especially VOCs, in soils and waste areas to migrate and further contaminate groundwater.

- Remediate contaminated groundwater outside of waste areas to meet ARARs and health-based levels, and provide a long-term alternate water supply to homes with contaminated wells.

- Reduce the potential for migration of VOCs from bedrock gas to groundwater.

Remedial action alternatives to meet these objectives were developed in two documents: an EE/CA addresses the tanks and waste areas; and a RAAE addresses all other site contamination. Two documents were written because USEPA and IEPA intend to remediate the tanks and waste areas as quickly as possible, prior to the remediation of other less highly contaminated areas. The two sets of alternatives are discussed separately below. Alternatives involving the waste areas and tanks will be referred to as Phase I alternatives, and alternatives involving other areas will be referred to as Phase II alternatives.

Phase I: Waste Area Alternatives

The eight remedial alternatives that were considered for the waste pile, the two tanks, and the sludges in the northwest area ("source areas") of the site (see Fig. 2) are described below. Detailed information about the alternatives is presented in the EE/CA. Approximately 6,000 tons of soils and sludge are present in the two waste areas, and 8,000 gallons of liquid and sludge are present in the tanks. All outlined cleanup alternatives can be constructed within 1 year of startup.

The tanks and waste areas meet the conditions set forth in the NCP for a non time-critical removal action, and were intended to be addressed as a removal prior to ROD signature. In accordance with the NCP, an EE/CA was written to evaluate cleanup alternatives. Because the EE/CA was not completed until August 1990, the Agency's selected remedy for this waste area has been incorporated into this ROD.

Common Elements

All Phase I alternatives, except no action, include treating the liquid and sludge contained in the two tanks by off-site incineration and landfilling of the tanks. Both the landfill and the incinerator will be permitted under the Resource Conservation

and Recovery Act (RCRA). The estimated cost of the tank removal is $379,000.

Under all alternatives except those that call for off-site disposal of treatment residuals, surface water diversions, such as trenches and berms, would be constructed to reduce water runon and infiltration. All Phase I alternatives can be constructed in one year.

Wastes originally disposed of at Acme Solvents, and now mixed with soil and debris, include still bottoms from a solvent reclaiming operation. Although all disposal occurred prior to the enactment of RCRA, if the wastes were generated today, they would be classified as F001 - F005 listed waste. In addition, some of the highly contaminated soils and sludges may be RCRA characteristic due to TCLP toxicity. RCRA regulations are therefore applicable to remedial action alternatives which would constitute placement of a RCRA waste, but are not applicable to alternatives which treat waste in-situ.

Because existing and available data do not demonstrate that the treatment processes under consideration can consistently attain RCRA LDR standards for all soil and debris wastes to be addressed under Phase I, the alternatives will comply with LDRs through a Treatability Variance. The treatment level range established through a Treatability Variance that these technologies would attain for Acme indicator parameters is shown in Table 7.

No Action

As described in the EA and EE/CA for the Acme Solvents site, the presence of high levels of VOCs, SVOCs and PCBs in the waste areas could present an appreciable health risk if left unremediated. The exposure pathways contributing most significantly to the risk are: inhalation of VOCs, dermal contact with PCBs, and incidental ingestion of PCBs. VOCs would also continue to migrate to groundwater if the waste areas were not remediated.

Alternative 1: Soil vapor extraction, RCRA cap, surface water diversions.

Alternative 1 provides for extracting VOCs using in-situ soil vapor extraction (SVE). SVE would consist of drilling a series of wells into the soil mound and in the northwest portion of the site, to bedrock (approximately 25 feet). Extracted air would be vented through activated carbon to remove VOCs. When the SVE has eliminated 90 to 95 percent of the VOCs, the SVE system would be removed. A RCRA Subtitle C compliant cap would then be installed over the areas to prevent direct contact with residual contamination, including SVOCs, PCBs, and metals, and to reduce migration of the remaining VOCs to groundwater.

TABLE 7

TREATABILITY VARIANCE LEVELS FOR ACME SOIL AND DEBRIS[1]

Structural Functional Group	Acme Site Contaminant	Maximum Conc. (mg/kg)	Range to be Achieved
PCBs	PCBs	290	90 - 99.9 % reduction
Halogenated Aliphatics	1,2-Dichloroethene	44	95 - 99.9 % reduction
	Trichloroethene	4.5	0.5 - 2 mg/kg
	Tetrachloroethene	31	0.5 - 2 mg/kg
Non Polar Aromatics and Heterocyclics	Ethylbenzene	290	90 - 99.9 % reduction
	Total Xylenes	1,500	90 - 99.9 % reduction
Other Polar Organics	Bis(2-ethylhexyl) phthalate	1,300	90 - 99.9 % reduction
Inorganics	Arsenic	20.9	0.27 - 1 mg/l (TCLP)
	Barium	1,190	0.1 - 40 mg/l (TCLP)
	Chromium	54,900	0.5 - 6 mg/l (TCLP)
	Lead	52,500	0.1 - 3 mg/l (TCLP)

[1]Source: OSWER Directive No. 9347.3-06FS. Treatability variance levels were calculated based on STI sampling data. These levels should be recalculated if predesign sampling shows different contaminants of concern or maximum concentrations.

Because soils would not be excavated, RCRA Subtitle C closure requirements would not be applicable; however, a RCRA Subtitle C compliant cap is proposed to maximize infiltration reduction.

Total present net worth (PNW) cost of Alternative 1: $1,036,000

Alternative 2: Soil vapor extraction, in-situ solidification, surface water diversions.

Alternative 2 includes installation of an SVE system, as described in Alternative 1, to eliminate 90 to 95 percent of the VOCs. Alternative 2 would then use in-situ solidification to immobilize PCBs, SVOCs, and metals such as lead. A specifically designed drilling rig would inject solidification materials through the center of the augers and mix them with contaminated soils. Treatability studies would be necessary to determine the effectiveness of solidification on organic contaminants.

As in Alternative 1, RCRA closure requirements would not be considered applicable to this action because all materials would be treated in-situ.

Total PNW cost of Alternative 2: $1,173,000

Alternative 3: Excavation, chemical oxidation, solidification, followed by (a) off-site disposal or (b) on-site placement and surface water diversions.

Alternative 3 provides for excavating soils and sludges and then treating the wastes by chemical oxidation to destroy VOCs, SVOCs, and PCBs. The chemical oxidation system being evaluated, for which a preliminary treatability test has been conducted, uses hydrogen peroxide and a catalyst to break down organic chemicals. This oxidation process would be performed in a reactor equipped with vapor-phase activated carbon to capture emitted volatiles. The remaining treatment residue would then be solidified to immobilize metals such as lead. Further treatability studies would be required to determine whether these technologies would be effective on site contaminants, especially PCBs.

Following solidification, the treated waste would be disposed of using one of two alternatives. Alternative 3a calls for off-site disposal of treated material at a RCRA-permitted hazardous waste landfill. Alternative 3b, on-site placement and surface water diversions, calls for leaving treated material on-site and imposing runon and infiltration controls to minimize the potential for contaminant migration.

Because Alternative 3 calls for excavation and treatment and disposal of soil contaminated with RCRA waste, RCRA LDRs would be applicable. Thus, this alternative must, at a minimum, meet the Treatability Variance standards for soil and debris (see Table 7).

RCRA Subtitle C closure requirements must also be met in Phase II if treatment residuals are placed on-site (Alternative 3b).

Total PNW cost of Alternative 3a: $7,990,000
Total PNW cost of Alternative 3b: $6,390,000

Alternative 4: Excavation, soil washing, off-site treatment and disposal of washing liquids and contaminants, followed by (a) off-site soil disposal or (b) on-site placement and surface water diversions.

Alternative 4 provides for the excavation of soils and sludges, followed by a multistage soil-washing treatment process to remove VOCs, SVOCs, PCBs, and metals. Batches of contaminated soil would be mixed with surfactants and washing fluids. Washing liquids would be treated and contaminants would ultimately be taken off-site for treatment or disposal in compliance with RCRA Subtitle C. Treatability studies would be necessary to determine the effectiveness of the soil-washing process.

Two alternatives were evaluated for disposal of washed soils. Alternative 4a, off-site disposal, calls for off-site disposal of washed soils at a RCRA-permitted hazardous waste landfill. Alternative 4b calls for placing washed soils on-site and implementing runon and infiltration controls to minimize the potential for residual contaminant migration. Applicability of RCRA requirements would be the same as for Alternative 3.

Total PNW cost of Alternative 4a: $6,080,000

Total PNW cost of Alternative 4b: $4,680,000

Alternative 5: Excavation, followed by (a) off-site disposal or (b) low-temperature thermal stripping and off-site disposal.

Alternative 5 provides for excavating soils and sludges. Alternative 5a, off-site disposal, calls for transporting contaminated soils and sludges directly to a RCRA permitted hazardous waste landfill. Alternative 5b calls for volatilization of organic contaminants through a low-temperature thermal stripping (LTTS) process and then off-site transport and disposal of the treated waste. Soils and sludges would be heated to approximately 350° to 800° F to volatilize VOCs and SVOCs. Units operating at temperatures at the high end of that range can also volatilize PCBs. Offgases resulting from the thermal treatment process would either be collected and condensed or passed through a high-temperature afterburner. Treatability studies would be required to evaluate the efficiency of the process in removing SVOCs and PCBs. Metals would not be treated.

Under Alternative 5b, treated soils would be placed on-site, and runon and infiltration controls would be implemented to minimize the potential for residual contaminant migration.

As in Alternative 3, RCRA LDRs would be applicable to this alternative. Alternative 5a would not meet RCRA LDR requirements. If Alternative 5b is selected, RCRA Subtitle C closure will be required in Phase II.

Total PNW cost of Alternative 5a: $1,900,000

Total PNW cost of Alternative 5b: $3,400,000

Alternative 6: Excavation, on-site incineration, surface water controls, and (a) on-site placement or (b) solidification and on-site placement.

Alternative 6 provides for excavating contaminated material and incinerating materials on-site to destroy PCBs, VOCs, and SVOCs. After incineration, residuals would be placed on-site (Alternative 6a), or residuals would be solidified to immobilize metals and then placed on-site (Alternative 6b). Surface water controls would be installed to reduce water runon. A mobile incinerator would be brought on-site, and a trial burn would be performed to demonstrate compliance with RCRA and the Toxic Substances Control Act (TSCA), including a 99.9999 percent destruction removal efficiency for PCBs. Treated soils would be placed on-site, and runon and infiltration controls would be implemented to minimize the potential for residual contaminant migration. Because most metals cannot be destroyed through incineration, residuals placed on-site under Alternative 6a would contain some metals; however, solidification (Alternative 6b) should effectively immobilize heavy metals.

RCRA LDRs and Subtitle C closure requirements must be met for both Alternatives 6a and 6b. Alternative 6a may not meet these requirements, depending on the level of metals remaining in residuals.

Total PNW cost of Alternative 6a: $13,000,000

Total PNW cost of Alternative 6b: $14,000,000

Alternative 7: Excavation, off-site incineration.

Alternative 7 provides for excavating contaminated material, loading contaminated material into drums, and transporting drums off-site to a RCRA- and TSCA-permitted hazardous waste incinerator. Residuals would be placed in an off-site RCRA-permitted hazardous waste landfill. Excavated areas would be backfilled with clean soil.

As in Alternative 3, RCRA LDRs and Subtitle C closure requirements will also be applicable for this alternative. Residuals may have to be solidified off-site to meet RCRA requirements.

Total PNW cost of Alternative 7: $13,000,000

Alternative 8: Excavation, low-temperature thermal stripping, solidification, followed by (a) off-site disposal or (b) on-site placement and surface water diversions.

Alternative 8 provides for excavating soils and sludges and then treating them through the LTTS system described under Alternative 5b. Residuals would then be solidified, if necessary, to immobilize metals.

Alternative 8a, off-site disposal, calls for off-site disposal of treatment residuals at a RCRA-permitted hazardous waste landfill. Alternative 8b calls for on-site placement of treatment residuals and imposing runon and infiltration controls to minimize the potential for contaminant migration.

As in Alternative 3, RCRA LDRs and Subtitle C closure requirements would be applicable for Alternative 8b. Thus this alternative must, at a minimum, meet the Treatability Variance standards for soil and debris (see Table 7).

Total PNW cost of Alternative 8a: $4,300,000

Total PNW cost of Alternative 8b: $2,700,000

Phase II: Remaining Soil, Bedrock, and Groundwater Alternatives

Six remedial alternatives are being considered for cleaning up the remaining soil, bedrock, and groundwater contamination. In general, the alternatives become increasingly complex and build upon previous alternatives to provide more comprehensive approaches to site remediation. Further information about these alternatives is presented in the RAAE.

Common Elements

Except for the no action alternative, all alternatives contain common elements, as discussed below. All alternatives provide for two types of cap, a RCRA Subtitle C compliant cap or a 12-inch soil cover. These options are provided because the selection of Phase I cleanup alternative will, in part, determine whether or not RCRA ARARs are triggered and Subtitle C closure is required. All Phase II alternatives include site fencing to ensure the integrity of the cap or cover and deed notices or advisories to restrict use of the site and to restrict use of on- and off-site

contaminated groundwater until cleanup levels are attained. Under all alternatives, the affected residences would be provided with a permanent alternate water supply from the Pagel's Pit deep well or from a new water supply well in the St. Peter Sandstone aquifer (see Fig. 5). All alternatives, including no action, include long term groundwater monitoring.

All cost estimates are based on 30 years of operation and maintenance. For Alternatives 2 through 6, a cost range is given in the RAAE, depending on the type of cap chosen (as discussed above) and the level of protection chosen, which ranges from a lifetime excess cancer risk of 1×10^{-4} to 1×10^{-6}. In the discussion below, a range from the least to most expensive option is given.

Groundwater soil areas and volumes used in cost estimates for the various levels of protection and bedrock gas mass estimates are shown on Figures 6 and 7 and Table 8. These estimates are based on limited data; further sampling will be necessary to refine these estimates.

Alternative 1: No further action.

Under Alternative 1, no action would be taken to clean up the contaminated soil, bedrock, and groundwater remaining after the Phase I cleanup. Groundwater monitoring wells would be sampled at least twice a year for a minimum of 5 years. At least every 5 years, a risk analysis would be performed to evaluate the site's threat to public health and the environment.

Total PNW cost of Alternative 1: $2,900,000

Alternative 2: *Soil cover or RCRA cap*, permanent alternate water supply, and long-term monitoring.

Alternative 2 involves consolidating soil contaminated with lead, SVOCs, and PCBs (approximately 33,000 ft^2; see Figures 6 and 7) and covering it with a 12-inch soil cover or RCRA Subtitle C compliant cap. The capped areas would be revegetated, and the site would be fenced. Deed restrictions would also be imposed. Groundwater and VOC-contaminated soils would not be treated under this alternative. As in Alternative 1, monitoring wells would be sampled for at least 5 years to estimate contaminant attenuation and migration.

The total PNW cost of Alternative 2 ranges from $3,700,000 (to achieve 10^{-4} risk using a soil cover) to $6,830,000 (to achieve 10^{-6} risk using a RCRA cap).

TABLE 8

GROUNDWATER, SOIL AND BEDROCK GAS VOLUME ESTIMATES

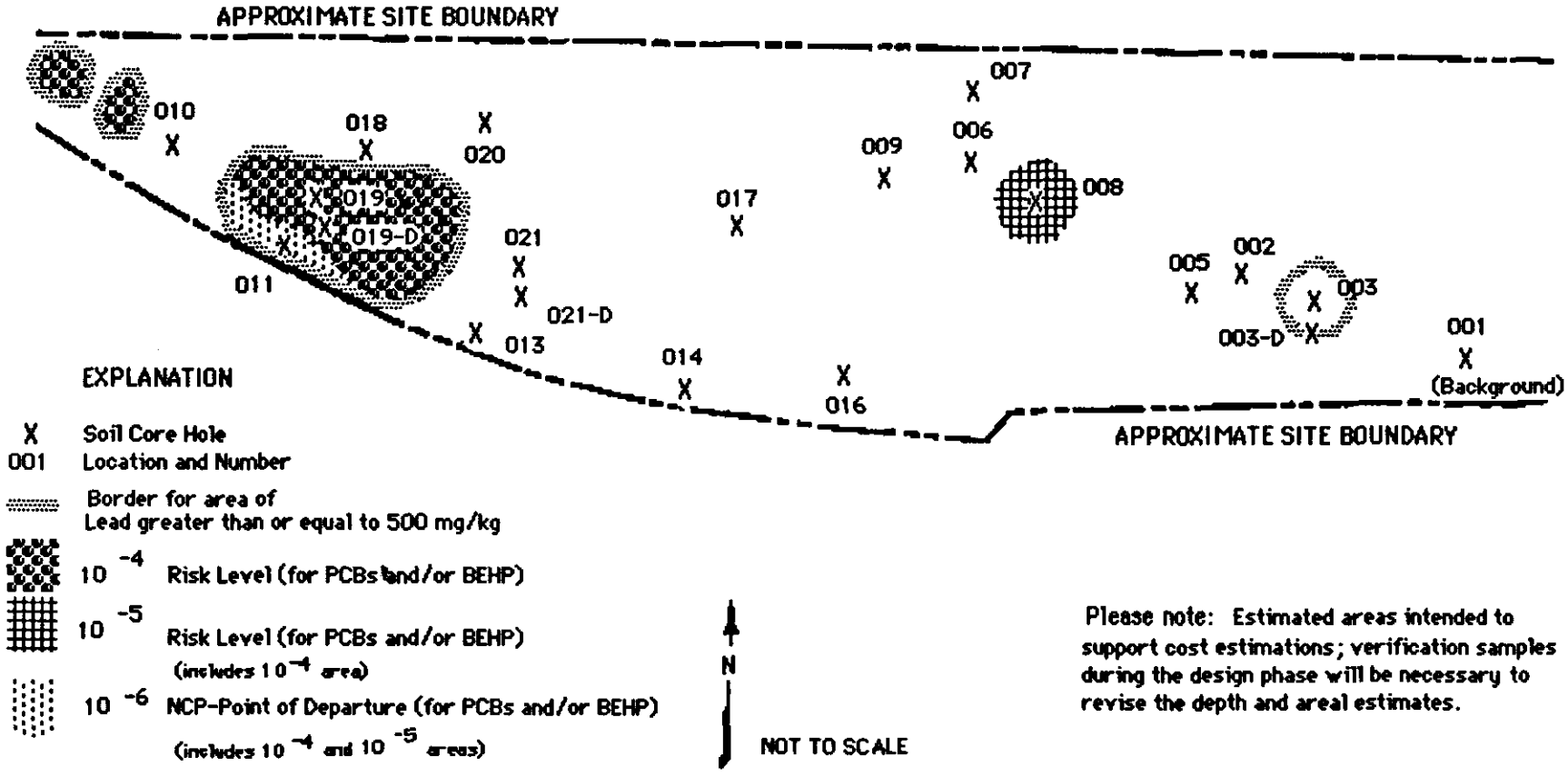
	risk level		
Groundwater volume	10^{-4}	10^{-5}	10^{-6}
area (ft^2)	1.4×10^5	4.3×10^6	6.3×10^6
volume (gallons)	5.8×10^6	1.8×10^8	2.6×10^8
Soil volume			
immobile contaminants[1] (lead, BEHP, PCBs)			
area (ft^2)	28,000	33,000	33,000
mobile and immobile contaminants[2] (BEHP, PCBs, VOCs)			
volume (yd^3)	4,800	8,600	9,100

Bedrock gas (mass)	average case estimate[4]	worst case estimate
bedrock gas (lbs)[3]	391	6800

[1] used for cap and soil cover cost estimates
[2] used for treatment cost estimates
[3] estimated mass of VOCs in bedrock gas
[4] used in SVE cost estimates

Figure 6

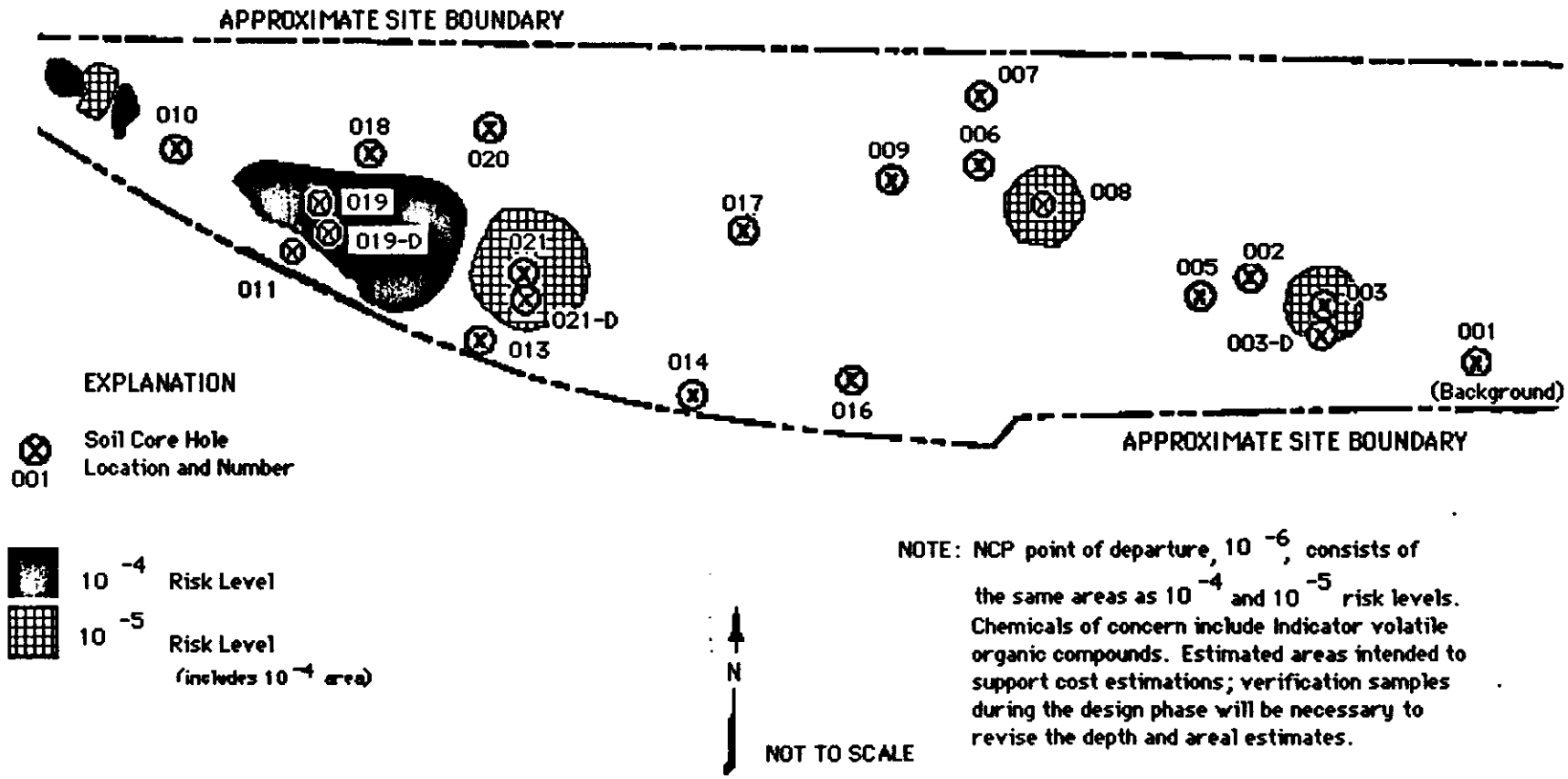
Estimated Extent of Residual Soil Exceeding Action Levels for the Surficial Pathway
Acme Solvents Reclaiming, Inc.



Please note: Estimated areas intended to support cost estimations; verification samples during the design phase will be necessary to revise the depth and areal estimates.

Figure 7

Estimated Extent of Residual Soil Exceeding Action Levels for Groundwater Chemicals of Concern
Acme Solvents Reclaiming, Inc.



Alternative 3: Soil cover or RCRA cap, permanent alternate water supply, long-term monitoring, and low-temperature thermal stripping.

Alternative 3 includes all components of Alternative 2 and adds LTTS to treat VOC-, SVOC-, and PCB-contaminated soil. The volume of soil to be treated ranges from 4,800 to 9,100 cy, depending on the level of protection chosen (see Table 8 and Figs. 6 and 7). The LTTS process is described on page 16 under Phase I Alternative 5. Although this technology has been proven effective for removing VOCs, treatability studies would be conducted to evaluate its efficiency in removing SVOCs and PCBs. Metals such as lead would not be treated. Treated soil would be disposed of off-site in a RCRA Subtitle C compliant landfill or returned to the excavated areas.

Because Alternative 3 calls for excavation and treatment of soil contaminated with RCRA waste, RCRA Subtitle C closure requirements would be applicable if residuals are disposed of on-site. Thus, this alternative must include a RCRA Subtitle C compliant cap to comply with ARARs if soils are disposed on-site but may include a soil cover if materials are disposed off-site, and if the selected Phase I alternative does not include on-site disposal. Also, treatment by LTTS must, at a minimum, meet the Treatability Variance standards for soil and debris (Table 7), in order to comply with RCRA LDRs.

All components of Alternative 3 can be completed within one year. The total PNW cost of Alternative 3 ranges from $9,400,000 (for 10^{-4} risk and off-site disposal) to $14,210,000 (for 10^{-6} risk and off-site disposal).

Alternative 4: Soil cover or RCRA cap, permanent alternate water supply, long-term monitoring, groundwater pump and treat, and discharge of treated effluent.

Alternative 4 includes all components of Alternative 2 but adds extraction and treatment of VOC-contaminated groundwater. Volumes of groundwater to be remediated to achieve various levels of protection are presented in Table 8. Extracted water would be treated by air stripping or an equivalent technology and discharged to Killbuck Creek or the intermittent stream that crosses the site. Treatability studies may be required to design the groundwater treatment system. Offgasses would be treated if emissions from the air stripper exceeded health-based levels or ARARs. Soils would not be treated under this alternative but would be consolidated and covered with a soil cover or RCRA cap.

The area of remediation for groundwater pump and treat extends from the boundary of the waste areas (essentially equivalent to the site boundary) to the edge of the VOC plume. Groundwater contamination at the southeast corner of Pagel's Pit Landfill

would be excluded, as discussed in Section IV. Groundwater cleanup would meet or exceed maximum contaminant levels (MCLs) set under the Safe Drinking Water Act (SDWA) and non-zero MCL Goals (MCLGs). Discharge of treated groundwater must meet National Pollutant Discharge Elimination System (NPDES) limits set under the Clean Water Act (CWA).

Groundwater pump and treat would require 15 to 30 (or more) years to achieve remediation goals. All other components of Alternative 4 can be completed within one year. The cost of Alternative 4 ranges from $5,780,000 (for soil cover and 10^{-4} level of protection) to $10,203,000 (for RCRA cap and 10^{-6} level of protection).

Alternative 5: Soil cover or RCRA cap, permanent alternate water supply, long-term monitoring, groundwater pump and treat, and soil and bedrock vapor extraction.

Alternative 5 includes all components of Alternative 4 but adds vapor extraction to remove VOCs from soil and bedrock. Vapor extraction uses pumps connected to extraction wells to draw VOCs through the air spaces between soil particles and in bedrock. The vacuum established by the extraction wells draws VOC-contaminated air from the soil pores and draws fresh air from the soil surface down to the soil. The areas and volumes of soil and bedrock to be remediated are shown in Figure 7 and Table 8. If air emissions from the vapor extraction system exceeded health-based levels (based on the 10^{-4} to 10^{-6} carcinogenic risk range) or ARARs, offgases would be treated. Vapor extraction is a proven technology in soils, but pilot studies would be needed to determine its effectiveness in bedrock. Soils contaminated with SVOCs, PCBs, and lead would not be treated under this alternative but would be consolidated and covered with the soil cover or RCRA cap.

Because this alternative involves in-situ treatment, RCRA LDRs and closure requirements would only be applicable if required by the selected Phase I alternative.

It is estimated that the soil/bedrock vacuum extraction system would be operated for two to five years. The groundwater pump and treat system would require 15 to 30 (or more) years of operation to achieve remediation goals. All other components of Alternative 5 can be completed in one year. The PNW cost of Alternative 5 ranges from $7,948,000 (for a 10^{-4} level of protection and soil cover) to $12,475,000 (for a 10^{-6} level of protection and RCRA cap).

Alternative 6: Permanent alternate water supply, groundwater pump and treat, soil and bedrock vapor extraction, and (a) low-temperature thermal stripping or (b) off-site incineration and disposal.

Alternative 6 includes all components of Alternative 5 but adds treatment of SVOC- and PCB-contaminated soils by two alternative treatment technologies. In Alternative 6a, soils exceeding the selected risk level would be treated by LTTS as in Alternative 3. Residuals would be disposed of on-site and covered with a RCRA cap or disposed of off-site in a RCRA-permitted hazardous waste landfill. In Alternative 6b, soils exceeding the selected risk level would be incinerated off-site in a RCRA-permitted incinerator. Residuals would be disposed of off-site in a RCRA-permitted hazardous waste landfill.

Because Alternative 6 calls for excavation and treatment of soil contaminated with RCRA waste, RCRA Subtitle C closure requirements would be applicable if residuals are disposed of on-site. Thus, this alternative must include a RCRA Subtitle C compliant cap to comply with ARARs if soils are disposed on-site but may include a soil cover if materials are disposed of off-site and if the selected Phase I alternative does not include on-site disposal. Also, treatment by LTTS must, at a minimum, meet the Treatability Variance standards for soil and debris (Table 7) in order to comply with RCRA LDRs. Treatment by incineration must achieve a 99.9999 percent destruction removal efficiency for PCBs as required under RCRA.

The vacuum extraction system would be operated for two to five years. The groundwater pump and treat system would require 15 to 30 (or more) years to achieve remediation goals. All other components of Alternative 6 can be completed in one year.

The cost of Alternative 6a ranges from $13,335,000 (to achieve a 10^{-4} risk level with off-site disposal of residuals) to $19,186,000 (to achieve a 10^{-6} risk level with off-site disposal of residuals).

The cost of Alternative 6b ranges from $25,406,000 (to achieve a 10^{-4} risk level with off-site disposal of residuals) to $42,140,000 (to achieve a 10^{-6} risk level with on-site disposal of residuals).

VIII. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

The NCP requires that alternatives be evaluated on the basis of nine criteria: overall protection of human health and the environment; compliance with applicable, or relevant and appropriate, requirements (ARARs); long-term effectiveness and permanence; reduction of toxicity, mobility, and volume (TMV) through treatment; short-term effectiveness; implementability;

cost; state acceptance; and community acceptance. This section compares Phase I and Phase II alternatives with respect to these criteria.

Threshold Criteria

Overall Protection of Human Health and the Environment

Phase I: All source area alternatives meet the CERCLA minimum requirement for protecting human health and the environment. Those alternatives that involve off-site landfilling of treated or untreated wastes and sludges (Alternatives 3a, 4a, 5a, 5b, 7, and 8a) provide the best overall protection because contaminants are completely removed from the site. Those alternatives that treat all contaminants before on-site landfilling (Alternatives 3b, 4b, 6, 8b) provide slightly less overall protection, although risk based cleanup levels must be met before treated material could be landfilled on-site. Those alternatives that treat only a portion of the contaminants (Alternatives 1 and 2) provide less overall protection.

Phase II: All Phase II alternatives (except no action) protect human health and the environment by providing a permanent alternate water supply to affected residents and treating or containing remaining contaminants in soil. The alternatives providing for both soil and groundwater treatment (Alternatives 5 and 6) provide the best overall protection. Alternatives 2 and 3 provide little protection to future groundwater users because no groundwater treatment is included.

For both Phase I and Phase II, the no action alternative is not protective of human health and the environment. The no action alternative will not be considered further in this analysis.

Compliance with ARARs

Phase I: The most important ARARs associated with the Phase I cleanup are RCRA and TSCA requirements. All alternatives meet these requirements except Alternative 5a, as discussed below. RCRA LDRs (40 CFR Part 268) require treatment of hazardous substances before landfilling. LDR requirements will be met through a Treatability Variance. All alternatives requiring excavation and treatment (Alternatives 3 through 8) require treatability testing to ensure that RCRA LDR Treatability Variance standards (see Table 7) can be met. Alternatives that include on-site landfilling of residuals (Alternatives 3b, 4b, 6a, 6b, and 8b) also require RCRA Subtitle C closure as part of the Phase II cleanup. Alternatives which include off-site landfilling of residuals (Alternatives 3a, 4a, 5a, and 8a) must meet all Federal and State permit requirements for landfilling hazardous waste. Alternatives 1 and 2 are not required to meet RCRA LDR standards because materials would be treated in-situ. Alternative 5a would

not meet LDRs because the materials would be landfilled off-site without treatment. This was prohibited after expiration of the national capacity extension for CERCLA soil and debris on November 8, 1990.

The TSCA PCB spill cleanup policy (40 CFR 761) is a "to be considered" (TBC) criterion for this cleanup. This policy requires that spills resulting in PCB contamination of greater than 50 ppm be cleaned up to a level of 10 ppm and covered with at least 10 inches of clean soil. All alternatives except 1 and 2 meet this criterion; however, treatability studies will be required to ensure that residuals from some of the treatment technologies can meet the 10-ppm cleanup level.

Phase II: RCRA and TSCA regulations are also important ARARs for the Phase II cleanup, as are MCLs and MCLGs set under the Safe Drinking Water Act (SDWA) (40 CFR 141 and 143) and NPDES limits set under the CWA. All Phase II alternatives will meet MCLs and non-zero MCLGs at the point of exposure through provision of an alternate water supply; however, Alternatives 2 and 3 will not meet these ARARs in the aquifer. Alternatives 4, 5, and 6 must meet NPDES limits, and utilize the best available demonstrated control technology (BAT) for treatment and discharge of groundwater to surface water.

RCRA requirements will dictate which of the site capping options (soil cover or RCRA Subtitle C compliant cap) is selected, and LDRs will set minimum standards for excavated and treated materials. Alternatives 3 and 6, which include excavation and treatment of soils, must meet Treatability Variance standards for soil and debris in order to meet the requirements of RCRA LDRs. If, under the Phase I or Phase II cleanup, treatment residuals are to be landfilled on-site, the RCRA compliant cap option must be selected under Phase II in order to meet RCRA Subtitle C closure and post closure requirements.

All Phase II alternatives meet the requirements of the TSCA PCB spill cleanup policy, as discussed above.

Primary Balancing Criteria

Long-Term Effectiveness and Permanence

Phase I: Alternatives 6 and 7 (on- and off-site incineration) provide the best long term effectiveness and permanence. All other Phase I alternatives require treatability studies to assess this criterion; however, the alternative that relies on capping to prevent exposure to some contaminants (Alternative 1) provides less permanence than those that treat all contaminants. Because Phase I is not intended to provide the final solution for the site, this criterion is more important for Phase II than for Phase I.

Phase II: All alternatives include a soil cover or RCRA compliant cap that provides adequate long-term effectiveness for contaminants in surface soils as long as the cover or cap is maintained. Those alternatives providing for treatment of contaminants in groundwater, soils, and bedrock, in addition to the soil cover or cap (Alternatives 5 and 6) provide the best long-term effectiveness and permanence. Alternative 2 with the soil cover option provides the least permanence because the soil cover would be largely ineffective in preventing migration of VOCs to groundwater.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Phase I: Those alternatives involving technologies that treat all site contaminants (VOCs, SVOCs, PCBs, and metals), Alternatives 3, 4, 6, 7, and 8, provide the best reduction of TMV.

Alternatives that treat only some of the contaminants, such as Alternatives 1, 2, and 5b, provide less reduction of TMV. Alternative 5a provides no reduction of TMV.

Phase II: Of the Phase II alternatives, Alternative 6 best reduces TMV through treatment because all contaminants that exceed risk-based levels would be treated. Alternative 5 provides slightly less reduction of TMV because remaining SVOCs and PCBs would be capped rather than treated. Alternatives 4, 3, and 2 provide progressively less reduction of TMV.

Short-Term Effectiveness

Phase I: All source area alternatives can be completed within 1 year. The alternatives that do not involve soil excavation (Alternatives 1 and 2) provide the best protection of workers and the community during the remedial action. For all other alternatives that involve soil excavation, emission controls and dust suppression would be used if necessary to protect workers and the community during implementation.

Phase II: All alternatives can be constructed in less than 1 year; however, groundwater cleanup under Alternatives 4, 5, and 6 requires 15 to 30 (or more) years to complete. Soil vapor extraction may take 2 to 5 years to complete. As with the source area alternatives, the Phase II alternatives that do not require a large amount of excavation (Alternatives 2, 4, and 5) provide the best protection of the community and workers during construction; however, emission controls and other measures would be used as necessary to ensure protection from emissions during construction.

Implementability

Phase I: Many alternatives, including Alternatives 2, 3, 4, 5b, and 8, require treatability studies to ensure their effectiveness in treating the contaminants at the site. Incineration (Alternatives 6 and 7), if followed by solidification of the ash, is a proven technology for treating the site contaminants; however, a trial burn is required by RCRA regulations prior to use of an on-site mobile incinerator. No treatability studies would be needed for Alternatives 1 and 5a. Most of these technologies are readily available, although the capacity of on-site and off-site incinerators is limited, as is the capacity of RCRA-permitted landfills.

Phase II: Most Phase II alternatives under consideration use well established, conventional, and widely available technologies. However, treatability studies would be required for alternatives that include LTTS (Alternatives 3 and 6a). Also, vacuum extraction of bedrock contaminants has not been widely implemented. Bedrock vapor extraction requires pilot studies to assess its feasibility before this technology could be implemented at the Acme Solvents site.

Cost

Phase I: The source area alternatives can be ranked by cost as follows: Alternative 1 is least expensive, followed by Alternatives 2, 5a, 8b, 5b, 8a, 4b, 4a, 3b, 3a, 7, and 6. Technology costs range from $1,040,000 for SVE followed by capping, to $13,100,000 for on-site incineration.

Phase II: Phase II alternatives can be ranked by cost as follows: Alternative 2 is least expensive, followed by Alternatives 4, 3, 5, 6a, and 6b. Costs range from $4,173,000 for Alternative 2 at the 10^{-4} cleanup level to $42,140,000 for Alternative 6b at the 10^{-6} cleanup level.

Modifying Criteria

State Acceptance

IEPA has been involved throughout this and previous investigations of the Acme Solvents site and supports the selected remedies (discussed below) for both the Phase I and Phase II cleanups.

Community Acceptance

Community acceptance of the Phase I and II selected remedies is discussed in the Responsiveness Summary, which is attached as Appendix B.

IX. THE SELECTED REMEDY

Based on the information collected and developed in the STI, EA, EE/CA, and RAAE, and using the comparative analysis of alternatives described above, USEPA and IEPA have selected Phase I Alternative 8 and Phase II Alternative 5 as the most appropriate remedial actions at the Acme Solvent Reclaiming, Inc. site. This section contains a detailed description of the components of the selected remedies. A flow chart showing the basic elements of the Phase I and Phase II remedies is shown in Fig. 8.

PHASE I: SOURCE AREAS

The approximately 4,000 tons of soil and sludge in the waste areas and the approximately 2,000 tons of soil and sludge in the northwest area will be excavated and treated on-site by LTTS. Residuals from offgas treatment will be treated or disposed of as RCRA hazardous waste. Offgases from the LTTS process will be collected and condensed, or destroyed in a high temperature afterburner, if necessary to meet emissions standards discussed on page 31.

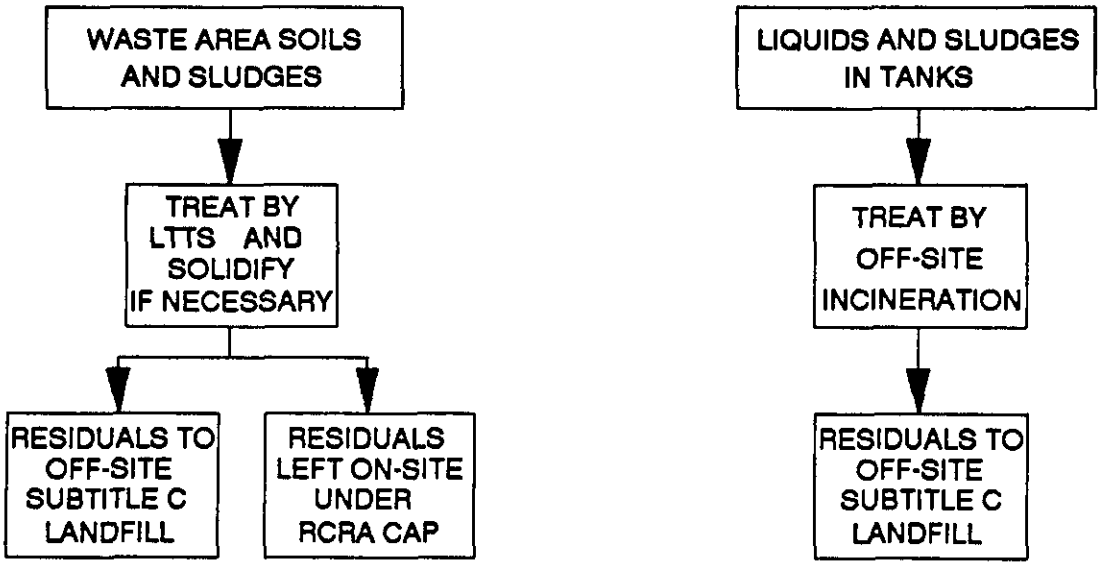
The two tanks remaining on-site will be emptied and disposed of in a RCRA Subtitle C compliant landfill or decontaminated and disposed of as nonhazardous waste. Soils under and around the tanks will be tested and treated by LTTS if they exceed the cleanup standards set forth in the following paragraph. The approximately 8,000 gallons of liquids and sludges in the tanks will be sent for treatment to an off-site RCRA- and TSCA-permitted incinerator. The incinerator operator will be responsible for disposing of the residuals in a manner consistent with RCRA Subtitle C.

The area to be excavated will be delineated in the field using a photoionization device (PID). A reading of 10 ppm above background will define the limits of excavation. All waste area materials exceeding 10 ppm PCBs must also be excavated and treated. Additional characterization of the waste areas will be performed to show whether the field delineation method described above will meet the 10 ppm PCB criterion or whether additional measures will be necessary to delineate areas contaminated above 10 ppm PCBs.

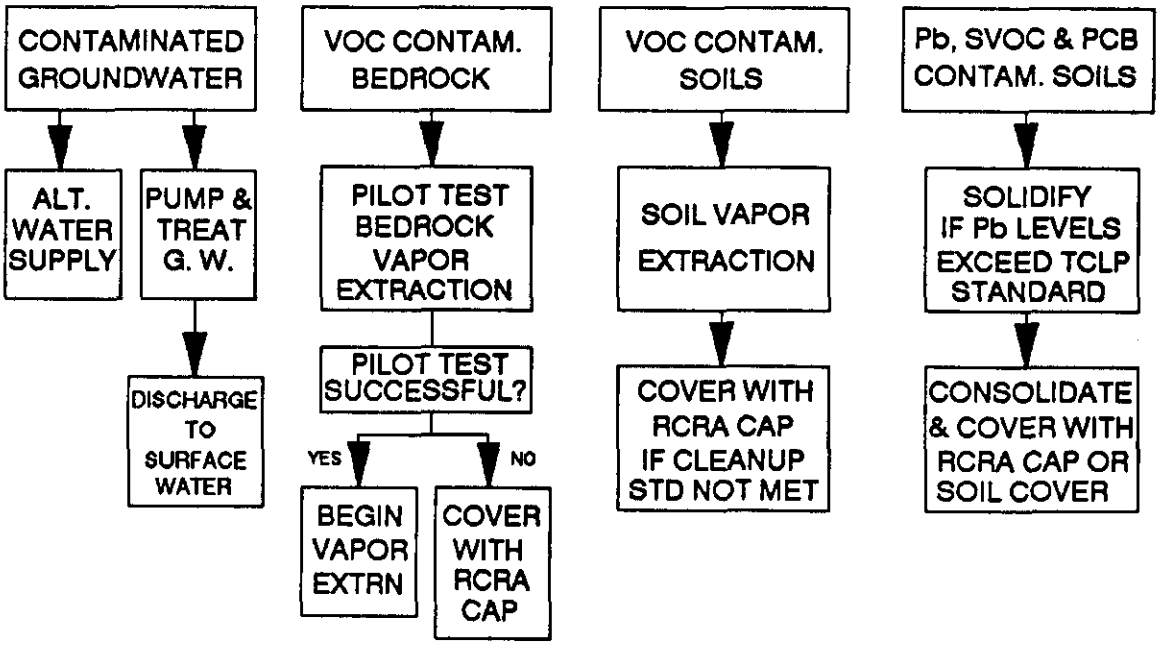
Residuals from the LTTS process must, at a minimum, meet the Treatability Variance standards for soil and debris set under RCRA LDRs (40 CFR 268) and listed in Table 7. Residuals will be further treated by solidification/stabilization, if necessary, to meet these standards. Treatability studies will be performed in the design phase to ensure that these standards can be met by this technology. Residuals that meet these standards can be landfilled off-site in a RCRA Subtitle C permitted hazardous

FIGURE 8
ACME SOLVENTS PHASE I AND PHASE II
SELECTED REMEDIES

PHASE I



PHASE II



waste landfill, as long as all other State and Federal requirements for landfilling hazardous waste are met.

If residuals are landfilled on-site, Treatability Variance standards must be met, as well as additional standards to ensure protection against direct contact threat and to prevent migration of contaminants remaining in residuals to groundwater. In addition, residuals must be covered by a RCRA Subtitle C compliant cap to meet RCRA ARARs. The column entitled "multimedia cap with FML" in Table 9 shows VOC cleanup standards for LTTS residuals to be landfilled on-site. In addition, PCBs must be treated to 10 mg/kg.

Table 10 provides a detailed cost estimate for the Phase I cleanup. The total cost of the Phase I selected remedy ranges from $3,079,000 to $4,679,000.

PHASE II: REMAINING SOILS, BEDROCK, AND GROUNDWATER

The selected Phase II remedy includes a RCRA compliant cap, permanent alternate water supply, long-term monitoring, groundwater pump and treat, and soil and bedrock vapor extraction.

Groundwater

A water main will be extended from the Pagel's Pit water supply well or from a new deep well to the residences within the 10^{-5} carcinogenic risk plume and those whose wells may become contaminated in the future. The HCTUs will be removed when the water main is completed.

A groundwater pump and treat system will be installed to capture all groundwater outside the site boundary that exceeds MCLs, proposed MCLs, or non-zero MCLGs. The MCL for 1,1-dichloroethene (1,1 DCE) was not used, for the reasons discussed below. A cumulative carcinogenic risk of 1×10^{-5} or a cumulative HI of 1 were used to develop cleanup standards for 1,1 DCE and contaminants without MCLs. Table 11 shows cleanup standards for indicator parameters. MCLs and a 10^{-5} risk level were selected because concentrations at the 10^{-6} and 10^{-5} levels are below reasonably achievable detection levels for many of the contaminants of concern and because of the technical difficulties associated with aquifer restoration in fractured bedrock.

The NCP calls for use of MCLs and MCLGs when setting standards for aquifer restoration, except in cases where the MCLG is zero, or where the attainment of MCL's would result in a cumulative carcinogenic risk outside of the 10^{-4} to 10^{-6} risk range. If the MCL for 1,1 DCE were used, the cumulative carcinogenic risk for all contaminants would be greater than 3×10^{-4}. Therefore, the cleanup standard for 1,1 DCE was set at the 10^{-5} risk level. The use of MCLs and 10^{-5} risk as discussed above results in a

TABLE 9

SOIL CLEANUP STANDARDS FOR VOCS

Compound	Soil Cover (ug/kg)	Multimedia Cap with FML (ug/kg)
1,1,1-Trichloroethane	7,300	64,000
1,1-Dichloroethene	0.8	6.9
1,1-Dichloroethane	2.4	21
1,2-Dichloroethene	1,430	13,000
Benzene	7.9	69
Tetrachloroethene	140	1,200
Trichloroethene	16	140
Vinyl Chloride	0.6	.52
4-Methyl-2-pentanone	723	6,100
Naphthalene	4,550	40,000

Notes:

FML = Flexible membrane liner

Soil cleanup standards were developed using the Summers Leach Model to determine a VOC concentration in soils that would ensure VOC concentrations in groundwater would not exceed a 1×10^{-5} carcinogenic risk level. USEPA's Hydrologic Evaluation of Landfill Performance (HELP) model was used to calculate the infiltration reduction provided by the soil cover and multimedia cap. Further information is provided in the RAAE. Cleanup standards for the multimedia cap have been reduced by a factor of 10 because the HELP model assumes perfect performance of the multimedia cap and has not been field verified.

Soil cleanup standards below detection levels (DLs) using USEPA approved methods for low level analysis of soils may be modified.

TABLE 10
page 1 of 3

COST ESTIMATE FOR THE SELECTED PHASE I REMEDY
LITS/SOLIDIFICATION/OFF-SITE DISPOSAL

	Capital Cost	Annual Cost
Technology Costs		
Soil Excavation	$ 170,000	
Off-Site RCRA Landfill	$ 950,000	
Transportation to Off-Site Landfill	$ 330,000	
Low-Temperature Thermal Stripping	$ 750,000	$ 200,000
Solidification	$ 510,000	
Subtotal	$ 2,700,000	$ 200,000
Site Costs		
Site Preparation	$ 20,000	
Site Administration	$ 18,000	
Insurance and Permit Renewal		$ 30,000
Subtotal	$ 38,000	$ 30,000
Indirect Costs		
Administration		$ 35,000
Contingencies		$ 35,000
Subtotal		$ 70,000
Construction Subtotal	$ 2,700,000	
Bid Contingencies	$ 540,000	
Scope Contingencies	$ 670,000	
Construction Total	$ 3,900,000	
Permitting and Legal Costs	$ 61,000	
Services During Construction	$ 75,000	
Subtotal	$ 140,000	
Total Capital Cost:	$ 4,000,000	
Total Annual Cost:		$ 300,000

Total PNW Cost (1 year): $ 4,300,000

Notes:

Costs developed by USEPA's Cost of Remedial Action (CORA) model

All costs are rounded to two significant figures.

The cost estimates shown are based on the data input to the program and cost algorithms developed for generic conditions. The final costs will depend on actual size, design, and market conditions. As a result, the final project costs will vary from the estimates presented here.

TABLE 10
Page 2 of 3

COST ESTIMATE FOR THE SELECTED PHASE I REMEDY
LITS/SOLIDIFICATION/ON-SITE PLACEMENT

	CAPITAL COST	ANNUAL COST
Technology Costs		
Soil Excavation	$ 170,000	
Solidification	$ 510,000	
Low-Temperature Thermal Stripping	$ 750,000	$ 200,000
Surface Water Diversion/Collection	$ 24,000	$ 700
Subtotal	$ 1,500,000	$ 200,000
Site Costs		
Site Administration	$ 20,000	
Insurance and Permit Renewal		$ 30,000
Subtotal	$ 20,000	$ 30,000
Indirect Costs		
Administration		$ 35,000
Contingencies		$ 35,000
		$ 70,000
Construction Subtotal	$ 1,500,000	
Bid Contingencies	$ 300,000	
Scope Contingencies	$ 460,000	
Construction Total	$ 2,300,000	
Permitting and Legal Costs	$ 36,000	
Services During Construction	$ 50,000	
Subtotal	$ 86,000	
Total Capital Cost:	$ 2,400,000	
Total Annual Cost:		$ 300,000

Total PNW Cost (1 year): $ 2,700,000

Notes:

Costs developed using USEPA's Cost of Remedial Action (CORA) model.

All costs are rounded to two significant figures.

The cost estimates shown are based on the data input to the program and cost algorithms developed for generic conditions. The final costs will depend on actual size, design, and market conditions. As a result, the final project costs will vary from the estimates presented here.

Engineering Cost Estimate for Incineration of
Tank Materials and Tank Disposal

Site preparation	$ 10,000
Packing	120,000
Transportation	1,000
Incineration	180,000
Tank disposal	6,000
Plans, permits, and regulatory fees	62,000
	$ 379,000

Assumptions for cost:

Site preparation will be concluded within four days and includes labor, rental equipment, and chemical stabilization.

Packing will be concluded within 15 days and includes labor, rental equipment, health and safety equipment, decontamination procedures and disposal, and drum costs.

Transportation will be concluded within one day and includes labor and transportation for three truckloads to CID.

Incineration will include 60 tons of material, as estimated from 8000 gallons with a density of 1.8 grams per cubic centimeter.

Tank disposal will be concluded within two days and includes labor, rental equipment, disposal, and transportation costs to CID.

Plans, permits, and regulatory fees includes management of task operations, finalizing documents necessary to task actions, and negotiations with regulatory agencies.

TABLE 11

GROUNDWATER CLEANUP STANDARDS

Compound	Cleanup Standard ug/l	Basis
1,1,1-Trichloroethane	200	MCL
1,1-Dichloroethene	0.2	1×10^{-5} carcinogenic risk
1,1-Dichloroethane	2	1×10^{-5} carcinogenic risk
1,2-Dichloroethene	70	MCLG for cis-1,2-DCE
Benzene	5	MCL
Tetrachloroethene	5	Proposed MCL
Trichloroethene	5	MCL
Vinyl chloride	2	MCL
4-Methyl-2-pentanone	125	cumulative HI of 1
Naphthalene	20	cumulative HI of 1

Notes:

This table shows cleanup standards for indicator parameters only. The general cleanup standards described in the text must be met for all groundwater contaminants.

Groundwater cleanup standards below DLs using USEPA approved methods for analysis of drinking water may be modified.

cumulative carcinogenic risk within the 10^{-4} to 10^{-6} risk range required by the NCP.

The cleanup standard selected for the alternate water supply (10^{-5} carcinogenic risk) is more stringent than the standard selected for the groundwater pump and treat system (10^{-5} risk only for 1,1 DCE and contaminants without MCLs) because the alternate water supply addresses actual exposures, while the groundwater pump and treat system addresses potential exposures. MCLs and 10^{-5} carcinogenic risk represent practically achievable cleanup standards for the groundwater pump and treat portion of the remedy given the difficulties of aquifer restoration in fractured bedrock.

The area of attainment for groundwater cleanup levels extends from the downgradient site boundary (the point of compliance) to the downgradient edge of contamination. Groundwater will be treated by air stripping, followed by carbon adsorption, if necessary (or an equivalent technology), and then discharged in accordance with NPDES discharge limits to Killbuck Creek or the intermittent stream that crosses the site.

The Galena-Platteville aquifer has been classified as a Class II aquifer under USEPA's Groundwater Protection Strategy and is widely used as a source of drinking water. The proposed remediation is consistent with USEPA's goal of returning usable aquifers to their beneficial uses within a reasonable time frame. However, because the Galena-Platteville Dolomite is a fractured bedrock formation, an extended period will be required to achieve aquifer remediation; the actual time required for remediation is uncertain. Groundwater modelling has estimated that remediation can be achieved in 15 to 30 years, however, experience at other Superfund sites indicates that models underestimate aquifer remediation times; the actual remediation time may be longer.

During the 15 to 30 (or more) years of aquifer remediation, the groundwater pump and treat system will be monitored and adjusted as warranted by the performance data collected during operation. Adjustments to the operating system may include discontinuing operation of extraction wells in areas where cleanup goals have been attained; alternating pumping at wells to eliminate stagnation points; and pulse pumping to allow aquifer equilibration and encourage adsorbed contaminants to partition into groundwater.

Soil and Bedrock

Soil/Bedrock Vapor Extraction

VOCs remaining in soil and bedrock after the Phase I cleanup will be treated by vapor extraction. A pilot test will be performed to assess the feasibility of bedrock vapor extraction. If the pilot

tests are successful, bedrock vapor extraction will be implemented under former waste disposal areas. Soil vapor extraction will be implemented in areas where VOCs in soil exceed the cleanup standards set forth in Table 9. As with the groundwater pump and treat system, the vapor extraction system will be monitored and adjusted as warranted by performance data collected during its operation. Adjustments may be similar to those cited for pump and treat.

Solidification

Lead-contaminated soils will be tested for leachability and will be solidified if the extract exceeds the 5 ppm RCRA TCLP lead standard. Disposal of solidified material will be as described for Phase I residuals.

RCRA Compliant Cap or Soil Cover

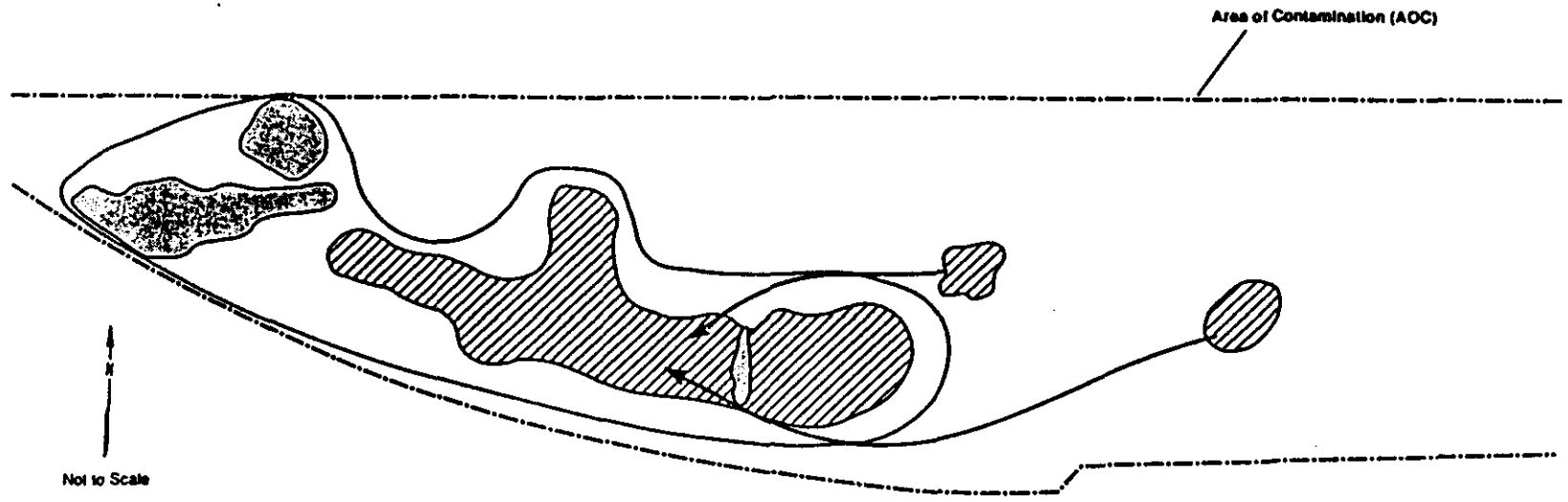
All areas in where materials are treated and backfilled on-site under the Phase I or Phase II cleanups will be covered with a RCRA Subtitle C compliant cap. In addition, any soils which exceed the VOC standards entitled "soil cover" in Table 9 after completion of SVE must be covered with a RCRA compliant cap. A RCRA compliant cap may also be required over all former waste areas if pilot testing shows that bedrock vapor extraction will not be effective in removing VOCs from bedrock. Soils which pose a direct contact threat will also be covered, as discussed below.

If no residuals are landfilled on-site (or if residuals can be delisted under RCRA), and if SVE is successful in treating VOCs in soils to levels at or below the standards set forth in the "soil cover" column in Table 9, a 12-inch soil cover may be placed on the site, rather than a RCRA compliant cap.

Soils containing contaminants that may pose a threat through direct contact will also be consolidated and capped. Because these contaminants are relatively immobile, a RCRA compliant cap is required only if the conditions set forth in the preceding paragraphs are not met. If those conditions are met, a 12-inch soil cover may be placed over these soils. The cleanup standards for direct contact threat are based on the 10^{-5} carcinogenic risk level developed in the Acme Solvents EA and the USEPA policies for PCB and lead action levels (OSWER Directive No. 9355.4-01 and 9355.4-02). Cleanup standards for contaminants which pose a direct contact threat are as follows: bis(2-ethylhexyl)phthalate - 58 mg/kg; PCBs - 1 mg/kg; and lead - 500 mg/kg.

Because the success of the treatment technologies and further testing in the design phase will determine the type and location of the RCRA cap, the exact location of the cap will not be specified in this ROD. Figure 9 is a conceptual drawing showing areas which may be capped.

ACM 1993



EXPLANATION

Approximate Location of Areas Addressed in the EE/CA; Area Estimated to be Approximately 2 Acres

Approximate Location of Areas Addressed in the RAAE; Area Estimated to be Approximately 3 Acres

Area Considered Under Capping Alternatives; Area Estimated to be Approximately 5 Acres

Persons To be Consolidated for Capping

Conceptual Configuration, Not for Design

Harding Lawson Associates
Engineering and Environmental Services

EE/CA and RAAE Areas of Concern
Acme Solvents Reclaiming, Inc., Site
Winnebago County, Illinois

FIGURE 9

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
RLB	17683.026.10		9/90	

A 10^{-5} cumulative carcinogenic risk level was selected for all portions of the soil cleanup because many VOC concentrations at the 10^{-6} risk level are below reasonably achievable detection levels. The VOC cleanup standards in soils are based on achieving 10^{-5} cumulative carcinogenic risk in the aquifer, a more stringent standard than for aquifer remediation. Because of the difficulties associated with aquifer remediation in fractured bedrock, a higher level of treatment of soil contaminants which may migrate and further contaminate groundwater is necessary to ensure protection of the aquifer.

Air Emissions, Monitoring, and Institutional Controls

Air emissions from excavation and treatment processes will be monitored. These processes include air stripping, soil and bedrock vapor extraction, soil excavation and consolidation, and the Phase I LTTS process. Offgas treatment or other corrective actions will be used if total air emissions from the site exceed an excess cancer risk of 1×10^{-5} for downgradient residences or workers at Rockford Blacktop Quarry, the nearest receptors.

The remedy will also include (1) long-term groundwater monitoring to ensure that action levels are being met, (2) site fencing and deed restrictions to prevent use of shallow groundwater under the site and to protect the soil cover, and (3) to the extent possible, deed notices or advisories will be provided to protect off-site users of groundwater until cleanup levels are met.

Construction of the water main can be started while the Phase I cleanup is being implemented. All other construction will start after Phase I is completed. The Phase II construction may take less than 1 year. Approximately 2 to 5 years may be required to remove contaminants through SVE; however, the groundwater cleanup may continue for 15 to 30 (or more) years. A cost estimate for the remedy is provided in Table 12. The total present worth cost for the Phase II cleanup is estimated at $11,933,000.

The total present worth cost for the Phase I and Phase II cleanups ranges from $15,012,000 to $16,612,000.

X. DOCUMENTATION OF SIGNIFICANT CHANGES

A Proposed Plan, which described USEPA's and IEPA's preferred alternative for remediation of the Acme Solvents site, was released for public comment in October 1990. The Agencies reviewed all written and verbal comments submitted during the public comment period. Upon review of these comments, it was determined that no significant changes to the remedy, as described in the Proposed Plan, were necessary. However, a few minor changes were made to the proposed remedy were made, as discussed below.

TABLE 12

COST ESTIMATE FOR THE SELECTED PHASE II REMEDY
RCRA CAP, PUMP AND TREAT, SVE

ITEM	CAPITAL COST	ANNUAL COST
Mobilization	$ 201,500	$ 8,600
Alternate Water Supply	$ 85,600	$ 6,000
Groundwater Monitoring		$ 247,400
Multimedia Cap	$ 1,800,000	$ 38,000
Groundwater Treatment (60 gpm)	$ 257,700	$ 88,400
Soil/Bedrock Vapor Extraction		
Shallow Soils	$ 130,000	$ 70,000
Bedrock	$ 531,400	$ 142,000
Pilot Testing	$ 65,000	
Total Vapor Extraction	$ 726,700	$ 212,000[1]
Groundwater Extraction Wells	$ 24,000	$ 8,000
Demobilization	$ 42,000	
Subtotal Capital Costs	$ 3,134,500	
Engineering and Design (17%)	$ 532,900	
Construction Management (10%)	$ 313,500	
Contingency (30%)	$ 940,500	
Total Capital Cost:	$ 4,921,400	
Total Annual Cost:		$ 608,400

Total PNW Cost (30 years): $ 11,933,000

1 SVE - 5 years maximum operation

Note: Actual costs may vary from -30 to +50 percent of values presented because of uncertainties in rate and cost factors. Additional variations in costs may also be realized because of uncertainties related to estimates of volume or area. Verification sampling conducted during the remedial design phase will be necessary to refine these estimates.

The Proposed Plan stated that for the Phase I remedy treatment residuals must meet RCRA TCLP standards in addition to meeting Treatability Variance standards. Further analysis of these standards indicated that Treatability Variance standards are nearly equivalent to TCLP standards, so the requirement that residuals meet TCLP standards was eliminated.

The Proposed Plan stated that, for the Phase II remedy, groundwater would be remediated if it exceeded a cumulative carcinogenic risk of 10^{-5}, and MCLs or non-zero MCLGs for non-carcinogens. Further analysis of cleanup standards indicated that MCLs, proposed MCLs, or non-zero MCLGs provided a more appropriate cleanup level than the 10^{-5} cumulative carcinogenic risk level, for the reasons discussed in Section IX. The cleanup standards for aquifer remediation were changed accordingly.

XI. STATUTORY DETERMINATIONS

Protection of Human Health and the Environment

The EA developed for the Acme Solvents site showed that ingestion and inhalation of contaminated groundwater and dermal exposure to and incidental ingestion of site soils in waste areas pose the greatest risks associated with the site. Provision of an alternate water supply to residents downgradient of the site, extraction and treatment of contaminated groundwater, and imposition of access restrictions to contaminated groundwater until aquifer remediation is attained will address risks from groundwater. Implementation of LTTS treatment of waste area soils and sludges, SVE treatment of remaining contaminated soils and bedrock gas, and capping of all contaminated areas will protect against risks from direct contact with soils. In addition, removal of VOCs from soils and bedrock through SVE and LTTS will reduce the source of VOCs to the aquifer and will thereby decrease the overall time required to remediate the aquifer. All risks resulting from exposure will be reduced to MCLs, a 1×10^{-5} carcinogenic risk level or an HI of less than one.

Use of emissions controls will protect against short term exposure to contaminants during the remedial action. No environmental impacts due to site contamination have been identified, and discharge of treated water to Killbuck Creek will be regulated by NPDES to ensure that the remedial action does not affect aquatic life.

Attainment of Applicable, or Relevant and Appropriate, Requirements

The selected Phase I and Phase II remedial actions will meet all identified applicable, or relevant and appropriate, federal and

more stringent state requirements. ARARs for the selected remedies are listed below.

Chemical Specific

- SDWA National Primary Drinking Water Standards (40 CFR 141)
- Clean Air Act (CAA) National Ambient Air Quality Standards (NAAQS, 40 CFR 50)
- CAA National Emission Standards for Hazardous Air Pollutants (NESHAPs, 40 CFR 61)
- Illinois General Use Water Quality Standards, and Public and Food Processing Water Supply Standards (35 IAC 302)
- Illinois General Effluent Standards (35 IAC 304)

Action Specific

- CWA NPDES Standards (40 CFR 125)
- RCRA Definition and Identification of Hazardous Waste (40 CFR 261)
- RCRA Standards for Generators of Hazardous Waste (40 CFR 262)
- RCRA Standards for Transport of Hazardous Waste (40 CFR 263)
- RCRA Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities (40 CFR 264)
- RCRA Land Disposal Restrictions (LDRs, 40 CFR 268) (LDR requirements will be met through a Treatability Variance.)
- Occupational Safety and Health Act (OSHA) Regulations for Workers Involved in Hazardous Waste Operations (29 CFR 1910)
- Illinois Regulations for Prohibition of Air Pollution (35 IAC 201)
- Illinois Regulations for Emissions of Fugitive and Particulate Matter Emissions (35 IAC 212)
- Illinois Organic Air Emission Standards (35 IAC 215)
- Illinois NPDES Permit Regulations (35 IAC 309)

Location Specific

- None identified

To Be Considered Criteria

- TSCA PCB Spill Cleanup Policy (40 CFR 761)
- SDWA Maximum Contaminant Level Goals (40 CFR 141.50)

Cost-Effectiveness

Phase I Alternative 8 and Phase II Alternative 5 achieve significant risk reduction at a total PNW cost of $15,012,000 to $16,612,000. Alternatives involving incineration (Phase I Alternatives 6 and 7 and Phase II Alternative 6b) offer a somewhat higher degree of permanence but at a significantly higher cost. The volume of soils and sludges in waste areas has been reduced by 90 percent since incineration was selected as the most appropriate remedial action for the site in 1985. Presently, the volume of soils and sludges is too small for cost-effective treatment by a mobile incinerator, but too large for cost-effective treatment at an off-site incinerator.

Other alternatives are less costly than the preferred alternatives, but provide less treatment. Phase I Alternatives 1, 2, and 5a are two to three times less expensive than the selected alternative, but provide for treatment of only VOCs, only VOCs and metals, and no treatment, respectively. Phase II Alternatives 2 and 3 sacrifice groundwater treatment, and Phase II Alternative 4 sacrifices treatment of mobile VOCs in soils for lower cost. The selected Phase II alternative is approximately three times more expensive than the least expensive action alternative, which only provides for a soil cover or RCRA cap and an alternate water supply with no treatment of contaminants.

Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

USEPA and IEPA believe that the selected Phase I and Phase II remedies represent the maximum extent to which permanent solutions and treatment technologies can be utilized in a cost-effective manner at the Acme Solvents site. Of those alternatives that are protective of human health and the environment and that comply with ARARs, USEPA and IEPA have determined that the selected remedy provides the best balance of long-term effectiveness and permanence, reduction of TMV through treatment, short term effectiveness, implementability, and cost, taking into consideration the statutory preference for treatment as a principal element and State and community acceptance.

Several innovative treatment alternatives were considered for Phase I. USEPA and IEPA selected LTTS followed by solidification because it affords a higher degree of certainty of achieving the

remedial action goals for all contaminants than some of the less established technologies considered, such as SVE followed by solidification, and chemical oxidation.

Of the alternatives that provided for aquifer treatment, USEPA and IEPA selected Phase II Alternative 5 over Alternative 4 because Alternative 4 would not treat VOCs in soil and bedrock. Treatment of the source of groundwater contamination has been found to reduce aquifer remediation time. Alternative 6 was not selected because it only adds treatment of very low levels of relatively immobile contaminants such as BEHP, PCBs, and lead (which can be effectively contained) at almost double the cost of Alternative 5.

Preference for Treatment as a Principal Element

The selected remedy provides for treatment of the principal threats at the site. The Phase I remedy treats the highest concentrations of VOCs, SVOCs, PCBs, and lead in the waste areas and tanks by LTTS and incineration, respectively, followed by solidification, if necessary. Phase II provides for additional treatment of VOCs, the most mobile of the remaining contaminants, by soil/bedrock vapor extraction and by extraction and treatment of groundwater. The only contaminants that will remain to be contained by the soil cover will be low levels of relatively immobile contaminants such as BEHP, PCBs, and lead. The selected alternatives thus satisfy the statutory preference for treatment as a principal element.

APPENDIX A

ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX - UPDATE #3
ACME SOLVENT RECLAIMING INC. SUPERFUND SITE
WINNEBAGO COUNTY, ILLINOIS

FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
	9	83/04/15	Letter Re: results of samples taken on March 8, 1983 from two private wells with attachments	Roger J. Ruden ILLINOIS DEPARTMENT OF PUBLIC HEALTH	B.Favero, IEPA	CORRESPONDENCE	1
	7	89/09/01	Letter Re: Scope of work developed for conducting aquifer tests	Fred Marinelli HARDING LAWSON ASSOCIATES	A.Hiltner, USEPA	CORRESPONDENCE	2
	4	90/05/11	Letter Re: Residential Water-Supply Analytical Data with attachments	Brian D.LaFlamme Michael J. Malley HARDING LAWSON ASSOCIATES	A.Hiltner, USEPA	CORRESPONDENCE	3
	4	90/11/02	Letter Re: Proposed Plan October 1990	Andrew Fletsch THE TESTOR CORPORATION	S.Kaiser/A.Hiltner, USEPA	CORRESPONDENCE	4
	17	90/11/05	Letter Re: Administrative Record with attachment	Steven J. Lemon WINSTON & STRAWN	S.Kaiser, USEPA	CORRESPONDENCE	5
	3	90/11/05	Letter Re: Proposed Plan	Gary Letcher THE HARKER FIRM	A.Hiltner, USEPA	CORRESPONDENCE	6
	4	90/11/05	Letter Re: Comments on Supplemental Technical Investigation Report (STI) and Proposed Plan	John Holmstrom III WINNEBAGO RECLAMATION SERVICE, INC.	A.Hiltner, USEPA	CORRESPONDENCE	7
	54	90/10/18	Public Hearing on the Proposed Plan	USEPA		MEETING NOTES	8
	28	90/03/02	Memo	Michael J. Malley	A.Hiltner, USEPA	MEMORANDUM	9

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WINNEBAGO COUNTY, ILLINOIS

FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
			Re: Residential Water-Supply Well Analytical Data with attachments	HARDING LAWSON ASSOCIATES			
	4	90/08/20	Memo Re: Residential Water-Supply Well Analytical Data with attachments	Brian D. LaFlamme HARDING LAWSON ASSOCIATES	A.Hiltner, USEPA	MEMORANDUM	10
	7	90/11/07	Memo Re: Residential Water-Supply Well Analytical Data with attachments	Brian D. LaFlamme HARDING LAWSON ASSOCIATES	A.Hiltner, USEPA	MEMORANDUM	11
	14	85/09/30	Responses to numbered conclusions from "part one," QA/QC Program Review	E.Jordan		OTHER	12
	2	90/12/15	Treatment System Net Present Worth (NPW) with Fax Transmittal attachment	Carla Buriks PLANNING RESEARCH CORPORATION (PRC)	A.Hiltner, USEPA	OTHER	13
	7	86/11/07	Progress Report on Clean-Up Activities	Environmental Resources Management/ North Central, Inc.	USEPA	REPORTS/STUDIES	14
	98	90/10/11	Northwest Area Investigation Final Report	Brian D. LaFlamme Michael J. Malley HARDING LAWSON ASSOCIATES	AS Steering Committee	REPORTS/STUDIES	15

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WINNEBAGO COUNTY, ILLINOIS

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	80	12/90/00	Record of Decision (ROD)	Valdas Adamkus USEPA		REPORTS/STUDIES	16

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ACME SOLVENT RECLAIMING INC. SUPERFUND SITE
WINNEBAGO COUNTY, ILLINOIS

ICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
	3	90/02/09	Letter Addendum to December 15, 1989, Work Plan Northwest Area Investigation	Joshua D. Rosen Harding Lawson Associates	A.Hiltner - USEPA	Correspondence	1
	2	90/02/16	Letter Re: Northwest Area Investigation Acme Solvents Superfund Site	Allison Hiltner USEPA	P.Marinelli - HLA	Correspondence	2
	23	90/04/13	Letter Re: Identification of Applicable, or Relevant and Appropriate Requirements for the Acme Solvents Superfund Site with attachments	Allison L. Hiltner USEPA	P.Marinelli - HLA	Correspondence	3
	8	90/04/23	Letter Re: State Applicable, or Relevant and Appropriate Requirements for the Acme Solvents Superfund site with attached letter	Allison L. Hiltner USEPA	P.Marinelli - HLA	Correspondence	4
	3	90/06/26	Letter Re: Disposal of Remaining Soil and Debris from the Acme Solvents Reclaiming, Inc.	Anthony E. Rothschild Butler, Rubin, Newcomer, Saltarelli, Boyd & Krasnow	A.Hiltner - USEPA	Correspondence	5
	58	90/07/20	Letter Re: Proposal to dispose of the remaining contaminated soil and debris	Anthony E. Rothschild Butler, Rubin, Newcomer, Saltarelli, Boyd & Krasnow	S.Kaiser - USEPA	Correspondence	6

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ACME SOLVENT RECLAIMING INC. SUPERFUND SITE
WINNEBAGO COUNTY, ILLINOIS

FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
			with attachments; including; Record of Decision (ROD)				
	3	90/08/29	Letter Re: Disposal of Remaining Soil and Debris Acme Solvent Reclaiming, Inc.	Steve P. Kaiser Allison L. Hiltner USEPA	A.Rothschild - BRNSBK	Correspondence	7
	23	89/12/21	Work Plan Northwest Area Investigation Acme Solvents Reclaiming, Inc.	Joshua D. Rosen Harding Lawson Associates	USEPA	Reports/Studies	8
	206	90/08/06	Engineering Evaluation/ Cost Analysis Final Report Acme Solvents Superfund Site Volume II of II	Harding Lawson Associates	USEPA	Reports/Studies	9
	279	90/08/06	Engineering Evaluation/ Cost Analysis Final Report Acme Solvents Superfund Site Volume I of II	Brian M. Boggs Dennis M. Smith Harding Lawson Associates	USEPA	Reports/Studies	10
	184	90/09/20	Remedial Action Alternatives Evaluation Final Report Acme Solvents Site Volume I of II	Brian D. LaPlante John E. Hopkins Dennis M. Smith Harding Lawson Associates	USEPA	Reports/Studies	11
	185	90/09/20	Remedial Action Alternatives Evaluation	Harding Lawson Associates	USEPA	Reports/Studies	12

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ACME SOLVENT RECLAIMING INC. SUPERFUND SITE
WINNEBAGO COUNTY, ILLINOIS

FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
			Final Report Acme Solvents Volume II of II				
	10	90/10/00	Proposed Plan for the Acme Solvent Reclaiming, Inc. Superfund Site	USEPA		Reports/Studies	13
	37	90/07/06	Preliminary and validated ground-water chemistry results for samples obtained during the Northwest Area Investigation (Sampling Data)	F.Marinelli Harding Lawson Associates	A.Hiltner - USEPA	Sampling Data	14

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ICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
	28	90/06/08	Letter Re: General Notice of Potential Liability Acme Solvent Reclaiming, Inc. Superfund Site Winnebago County, Illinois with attachments [A,B,C, & D]	John R. Kelley USEPA	See Attachment B	Correspondence	1
	6	90/05/00	Acme Solvent Reclaiming, Inc. Site Superfund Fact Sheet Update	USEPA		Fact Sheets	2
	25	87/09/00	Final Community Relations Plan Acme Solvent Site and Pagel's Pit Site Rockford, Illinois	Jacobs Engineering Group, Inc.	USEPA	Reports/Studies	3
	433	90/02/23	Supplemental Technical Investigation Final Report Acme Solvents Site Winnebago County, Illinois Volume 2: Appendices	Harding Lawson Associates	Acme Steering Committee	Reports/Studies	4
	642	90/02/23	Supplemental Technical Investigation Final Report Acme Solvents Site Winnebago County, Illinois Volume 3: Appendices	Harding Lawson Associates	Acme Steering Committee	Reports/Studies	5

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ICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
	188	90/03/14	Remedial Action Alternatives Array Draft Report Acme Solvents Site Winnebago County, Illinois	Harding Lawson Associates	Acme Steering Committee	Reports/Studies	6
	24	90/03/20	Health Assessment for Acme Solvents Reclamation, INC. Winnebago County, Illinois	U.S. Public Health Service	USEPA	Reports/Studies	7
	188	90/05/29	Supplemental Technical Investigation Final Report Acme Solvents Site Winnebago County, Illinois Volume I: Main Text	Harding Lawson Associates	Acme Steering Committee	Reports/Studies	8
	442	90/06/08	Final Endangerment Assessment Acme Solvents Site National Priorities List Number 652 Winnebago County, Illinois Volume One	Levine * Fricke	Acme Settlors Coalition	Reports/Studies	9
	463	90/06/08	Final Endangerment Assessment Acme Solvents Site National Priorities List Number 652 Winnebago County, Illinois Volume Two Appendices	Levine * Fricke	Acme Settlors Coalition	Reports/Studies	10

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FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
2 A1	1	73/03/15	Notice that satisfactory progress is being made with the restoration of the site.	C.E.Clark-IEPA	Vito Punilia-Acme Solvent	Correspondence	1
2 A2	1	73/04/09	Notice that the facility has been satisfactorily closed and covered.	C.E.Clark-IEPA	Vito Punilia-Acme Solvent	Correspondence	2
2 A3	2	81/07/01	Letter of concern from a nearby resident over possible contamination of her well water and a request to the IEPA that they test her water. Attached is an newspaper article concerning Pagel's Pit.	Mrs. Daryl Thompson	IEPA	Correspondence	3
2 A6	1	81/07/16	Response to local resident's concerns over her well water.	Robert Castee1-IEPA	Mrs. Daryl Thompson	Correspondence	4
2 A7	1	81/08/18	Notice that water has been deemed unsafe for drinking. Letters mailed to the Lyfords, Baxters and the Linds.	Robert Wengrow-IEPA	See title	Correspondence	5
2 A8	2	82/01/12	Notice that the site is in violation for not complying with an Ill, Pollution Control Board Order.	Kuykendall & Seebald-IEPA	Vito Punilia-Acme Solvent	Correspondence	6
2 A10	1	83/02/15	Notice that water is unfit for human consumption.	Robert Wengrow-IEPA	J.Herrick-Rockford Skeet	Correspondence	7
2 A11	4	84/06/15	Notice that the USEPA considers the recipients of this letter may be responsible parties and may be liable for the costs associated with removal and remedial	Basil Constantelos-USEPA	Acme PRP's	Correspondence	8

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FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBR
			action. Letter also notifies recipients of the measures that will be taken and that may be taken at the site and asks them what measures that they may be willing to undertake.				
2 B1	1	84/11/00	Comments on the Preliminary Feasibility Study.	Betty Johnson-LeagueofWomen Voters		Correspondence	9
2 B2	2	84/12/12	Follow-up in writing to comments made at the public hearing held 12/6/84.	J. Orthoefer-Winn.Co.Dept.of Health	Greg Michaud-IEPA	Correspondence	10
2 B4	2	84/12/26	Comments on the cleanup proposals discussed at the public hearing on 12/6/84.	Stephen Erchns-McDermott,Will,et al	Greg Michaud-IEPA	Correspondence	11
2 B6	4	84/12/27	Comments on the Draft Remedial Feasibility Study.	Timothy Harker-Madison,Pfaelzer,...	Greg Michaud-IEPA	Correspondence	12
2 B10	3	84/12/28	Comments on the alternative cleanup proposals.	Laurence McHugh-Rooks,Pitts & Poust	Greg Michaud-IEPA	Correspondence	13
2 B13	9	85/05/20	Notification of potential liability for the site and encouragement to recipients to undertake voluntary cleanup activities. If no response to this letter recieved it will be assumed that the recipient declines involvement in any cleanup actions and may be named in a cost-recovery action filed in an appropiate court.	Basil Constantelos-USEPA	See service list	Correspondence	14
2 C8	15	85/09/30	Response to "Review of	David Ertz-E.C.Jordan Co.	Steven Dunn-IEPA	Correspondence	15

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FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
			RI/FS Work on the Acme Solvents Site" authored by contractor employed by the PRP Committee.				
2 D9	9	86/01/15	Observations and concerns on the design and implementation of the home carbon treatment units. Attached is an article which the author believes underlines the importance of exposure to VOC's by means other than ingestion.	J.Maichle Bacon-Winnebago County	Dave Favero-USEPA	Correspondence	16
2 E4	2	86/05/30	Factors that must be considered before consideration is given to allowing the installation of a well 500 to 1000 feet from the site for gravel washing.	Doug Crandall-IEPA	M.Bacon-WinnebagoCo Health	Correspondence	17
2 E6	8	86/11/25	Notice that the Administrative Order By Consent is now effective in its original form. Attached is a copy of the USEPA Responsiveness Summary.	Favero-USEPA & Crandall-IEPA	M.Bryant-Harding Lawson	Correspondence	18
2 E14	3	87/08/03	Executed Certificate of Completion and Covenant Not to Sue.	Ellen Carpenter-USEPA	James Rubin-Butler,Rubin,	Correspondence	19
2 F3	4	84/11/00	Fact Sheet #2 Cleanup Proposals	IEPA		Fact Sheet	20
2 F7	4	87/00/00	Superfund Fact Sheet Acme Solvent Site And Pagel's Pit Site.	USEPA		Fact Sheet	21
2 F11	2	87/06/00	Superfund Update -	USEPA		Fact Sheet	22

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FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
			Acme Solvent/Pagel's Pit Volume One.				
2 F13	2	72/03/13	Report on meeting between Vito Punilia and Robert Rocha of the IEPA concerning sludge disposal practices and potential problems.	Paul Barry-IEPA	Div.of Water Poll.Control	Memorandum	23
2 G1	1	75/10/09	After a visit to the site, the author believes that the site has a potential to become a major problem and suggests that the matter be reopened.	Kenneth Bechely-IEPA	Dennis Johnson-IEPA	Memorandum	24
2 G2	5	83/06/21	Documentation of a meeting with the Millers, Palmers, and Thompsons(area families).	Dave Favero-IEPA	File	Memorandum	25
2 G8	1	84/12/11	Extension of public comment period until 12/28/84.	Gloria Craven-IEPA	All present-PublicHearing	Memorandum	26
2 G9	19	85/02/15	Recommended Remedial Action for the Acme Solvent Site.	Dave Favero-IEPA	Bob Cowles-IEPA	Memorandum	27
3 B3	2	85/05/29	Position statement of the IEPA supporting the Record of Decision signed 4/1/85 by Richard Carlson of the IEPA (with-out attachment).	Robert Kaykendall-IEPA		Memorandum	28
3 B5	3	86/11/12	Memo transmitting an attached public comment letter on the Consent Order. The letter is from Betty Johnson of the League of Woman Voters and is dated 11/9/86.	Margaret McCue-USEPA	Daggett,et al. - USEPA	Memorandum	29

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3 B8	3	86/10/10	"U.S.EPA Seeks Public Comment On Acme Site Investigation."	USEPA		News Release	30
3 B11	1	87/06/24	EPA To Answer Questions On Acme Solvent And Pagel's Pit Superfund Sites.	USEPA		News Release	31
3 B12	1	84/12/06	Hearing Officer's Opening Statement at 12/6/84 public meeting.	Gloria Craves-IEPA		Other	32
3 B13	1	84/12/06	Agenda of 12/6/84 public meeting and notice of comment period.	IEPA		Other	33
3 B14	5	86/06/00	Completed Residential Survey forms.	Area residents		Other	34
3 C5	153	86/09/29	Administrative Order By Consent with attachments.	USEPA	Acme PRP's	Pleadings/Orders	35
4 G8	7	00/00/00	Community Relations Responsiveness Summary.	IEPA		Reports/Studies	36
5 A1	18	72/05/16	Field Investigation Report	Gerald Kehoe-IEPA	IEPA	Reports/Studies	37
5 B7	1	72/12/05	Inspection Report.	Rocha & Prichard-IEPA		Reports/Studies	38
5 B8	5	75/06/16	DLPC Geological Investigation Report.	Thomas P. Clark-DLPC, IL.		Reports/Studies	39
5 B13	1	76/07/21	Inspection Report.	"DAH" - IEPA		Reports/Studies	40
5 B14	14	82/10/25	Site Inspection Report	Fon Koch-Ecology & Environment	USEPA	Reports/Studies	41
5 C14	5	82/12/21	Preliminary Assessment	Paul Shea-Ecology & Environment	USEPA	Reports/Studies	42
5 D5	82	83/02/00	Remedial Action Master Plan (RAMP).	Roy F. Weston, INc.	USEPA	Reports/Studies	43

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6 C11	116	83/03/00	Extent Of Sources Of Groundwater Contamination- Acme Solvents Pagel's Pit Area Near Morristown, Illinois.	Ecology & Environment,Inc.	USEPA	Reports/Studies	44
7 F7	10	83/08/09	Community Relations Plan.	Daphne Gemill-USEPA	San Morekas-USEPA	Reports/Studies	45
7 G3	74	84/00/00	"Geology For Planning In Boone And Winnebago Counties."	Berg,Kempton & Stecyk-Il.Dept.Energ		Reports/Studies	46
8 E8	184	84/01/27	Quality Assurance Project Plan for the RI/FS.	R.C. Jordan Co.	IEPA and USEPA	Reports/Studies	47
10 F1	286	84/07/00	Remedial Investigation Volume II: Appendices.	R.C.Jordan Co.	IEPA	Reports/Studies	48
14 A2	6	84/07/17	Proposal for Additional Sampling and Analyses Remedial Investigation/ Feasibility Study.	David Ertz-R.C.Jordan	Dave Favero-IEPA	Reports/Studies	49
14 A8	119	84/09/00	Remedial Investigation Volume I Technical Report.	R.C.Jordan Co.	IEPA	Reports/Studies	50
15 E9	222	85/02/00	Preliminary Feasibility Study - Technical Report	R.C.Jordan Co.	IEPA	Reports/Studies	51
18 B11	118	85/06/00	Review of the RI/FS Report on the Acme Solvents Site.	Eugene A. Hickok & Assoc.	Acme Technical Cons.	Reports/Studies	52
19 F7	223	85/08/28	Soil and Test Pit Sampling.	CH2M Hill	USEPA	Reports/Studies	53
22 C8	7	85/09/05	Letter Report - Deep Groundwater Assessment.	Nowack & Ertz-R.C.Jordan Co.	Steven Dunn-IEPA	Reports/Studies	54
22 D3	58	85/09/27	Record of Decision (ROD).	Alan Levin for Valdas Adamkus-USEPA		Reports/Studies	55
23 B1	17	86/01/02	Home Treatment Unit	Mark Bryant-Harding Lawson	J. Fort -	Reports/Studies	56

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			Design	Assoc.	Martin,Craig,..		
23 C5	36	86/05/00	Data Analysis And Summary Report For Deep Ground Water Assessment	R.C.Jordan Co.	IEPA	Reports/Studies	57
23 F1	10	86/05/22	Appendix Five - None Carbon Treatment Units.			Reports/Studies	58
23 F12	59	86/08/20	Progress Report on Clean-up Activities at The Acme Solvent Site Rockford, Illinois.	ERM-North Central		Reports/Studies	59
24 D3	54	86/09/03	Progress Report on Clean-up Activities at The Acme Solvent Site Rockford, Illinois.	ERM-North Central		Reports/Studies	60
25 A4	68	86/09/23	Progress Report on Clean-up Activities At The Acme Solvent Site Rockford, Illinois.	ERM-North Central		Reports/Studies	61
25 F5	10	86/09/25	Progress Report on Clean-up Activities at The Acme Solvent Site Rockford, Illinois.	ERM-North Central		Reports/Studies	62
25 G3	91	86/10/13	Progress Report on Clean-up Activities at The Acme Solvent Site Rockford, Illinois.	ERM-North Central		Reports/Studies	63
26 G2	7	86/11/00	Responsiveness Summary	USEPA		Reports/Studies	64
26 G9	316	86/12/30	Summary of Task 1 - Initial Activities Supplemental Technical Investigation.	Harding Lawson Assoc.	Acme Steering Committee.	Reports/Studies	65
30 G5	39	87/01/06	Permitting And Compliance Plan for the Supplemental Technical Investigation.	Mark Bryant-Harding Lawson Assoc.	Dave Favero-USEPA	Reports/Studies	66
31 C3	74	87/01/08	Quality Assurance Project	Harding Lawson Assoc.	Acme Steering	Reports/Studies	67

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			Plan.		Committee		
32 B8	296	87/01/08	Volume II - Quality Assurance Project Plan Appendices A & B.	Harding Lawson Assoc.	Acme Steering Committee	Reports/Studies	68
35 D10	400	87/05/26	Quality Assurance Project Plan for the Supplemental Technical Investigation. Includes cover letters and transmittal letters.	Malley,et al.-Harding Lawson Assoc.	Acme Steering Comm.	Reports/Studies	69
39 G2	85	87/06/04	Rationale For The Proposed Soil And Bedrock Investigations Acme Solvents Reclaiming, Inc., Site Winnebago County, Illinois.	Malley&Bryant-Harding Lawson Assoc.	Acme Steering Comm.	Reports/Studies	70
40 G5	61	87/07/02	Revised Work Plan	Bryant & Rosasco-Harding Lawson	Dave Favero-USEPA	Reports/Studies	71
41 E10	67	87/11/25	Work Plan (Revised November 1987) Supplemental Technical Investigation - Acme Solvents Site Winnebago County, Illinois.	Myers&Bryant-Harding Lawson Assoc.	Acme Steering Comm.	Reports/Studies	72

ADMINISTRATIVE RECORD SAMPLING/DATA INDEX
ACME SOLVENTS SITE, WINNEBAGO COUNTY, ILLINOIS.
DOCUMENTS ARE NOT COPIED, BUT MAY BE REVIEWED AT THE USEPA
REGION V OFFICES, CHICAGO, IL, OR OTHER LOCATIONS

DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE
00/00/00	Raw data and chain-of-custody forms available for review			SAMPLING DATA

GUIDANCE DOCUMENTS INDEX - UPDATE #3
ACME SOLVENT RECLAIMING INC. SUPERFUND SITE
GUIDANCE DOCUMENTS ARE AVAILABLE FOR REVIEW AT
USEPA REGION V - CHICAGO, ILLINOIS

TITLE	AUTHOR	DATE
Determining When Land Disposal Restrictions (LDRs) Are Applicable to CERCLA Response Actions Superfund LDR Guide #5 (4 pgs.)	USEPA OSWER Dir. # 9347.3-05FS	89/07/00
Obtaining a Soil and Debris Treatability Variance for Remedial Actions Superfund LDR Guide #6A (6 pgs.)	USEPA OSWER Dir. # 9347.3-06FS	89/07/00
Overview of RCRA Land Disposal Restrictions (LDRs) Superfund LDR Guide #1 (4 pgs.)	USEPA Publication # 9347.3-01FS	89/07/00
Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (4 Pgs.)	USEPA OSWER Dir. # 9355.4-02	89/09/07
RCRA ARARs: Focus on Closure Requirements (6 pgs.)	USEPA OSWER Dir. # 9234.2-04FS	89/10/00
Guidance on Remedial Actions for Superfund Sites with PCB Contamination Superfund Management Review Recommendation 23 (158 pgs.)	USEPA OSWER Dir. # 9355.4-01	90/08/15

GUIDANCE DOCUMENTS INDEX-SUPPLEMENT TO THE ADMINISTRATIVE RECORD INDEX FOR THE ACME SOLVENT RECLAIMING, INC. SITE, WINNEBAGO COUNTY, ILLINOIS. DOCUMENTS HAVE NOT BEEN COPIED, BUT ARE AVAILABLE FOR REVIEW AT USEPA REG.V OFFICES,CHGO.IL.

TITLE	AUTHOR	DATE
CERCLA Off-Site Policy; Issues on the Off-site Policy Attached		00/00/0(
CERCLA Delegations of Authority - #14-1-A Removal Actions Costing Up to $1,000,000	OSWER Dir. #9260.2-01-A	84/04/16
CERCLA Delegations of Authority - #14-2	OSWER Dir.#9260.2-02	84/04/16
CERCLA Delegations of Authority - #14-14-A Determinations of Imminent and Substantial Endangerment	OSWER Dir. #9260.2-14-A	84/04/16
CERCLA Delegations of Authority - #14-14-B Abatement Actions Through Unilateral Orders	OSWER Dir. #9260.2-14-B	84/04/16

ACRONYM GUIDE FOR THE ADMINISTRATIVE RECORD - UPDATE #3
ACME SOLVENTS RECLAIMING INC. SUPERFUND SITE
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ACRONYM	DEFINITION
AS	Acme Solvents
IEPA	Illinois Environmental Protection Agency
NPW	Net Present Worth
PRC	Planning Research Corporation (PRC)
PRP	Potentially Responsible Party
QA/QC	Quality Assurance/ Quality Control
STI	Supplemental Technical Investigation Report
USEPA	United States Environmental Protection Agency

APPENDIX B

RESPONSIVENESS SUMMARY
ACME SOLVENT RECLAIMING, INC. SITE
WINNEBAGO COUNTY, ILLINOIS

I. RESPONSIVENESS SUMMARY OVERVIEW

In accordance with CERCLA Section 117, 42 U.S.C. Section 9617, the United States Environmental Protection Agency (USEPA) and Illinois Environmental Protection Agency (IEPA) held a public comment period from October 5, 1990, to November 5, 1990, to allow interested parties to comment on the Supplemental Technical Investigation (STI), Engineering Evaluation/Cost Analysis (EE/CA), Remedial Action Alternatives Evaluation (RAAE), and Proposed Plan for remedial action at the Acme Solvent Reclaiming Inc. (Acme Solvents) site. USEPA and IEPA presented the Proposed Plan to the public at an October 18, 1990, public meeting, where questions were answered and comments accepted from the public.

The purpose of this responsiveness summary is to document comments received during the public comment period and USEPA's responses to these comments. All comments summarized in this document were considered in USEPA's final decision for remedial action at the Acme Solvents site.

II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

The residents near the site on Lindenwood and Baxter Roads have been concerned about Acme Solvents site contamination since the initiation of USEPA and IEPA community relations activities in 1983.

Since 1983, USEPA and IEPA have conducted small group meetings and public meetings, and have issued several fact sheets and letters to residents. Approximately 30 people attended the October 18, 1990 public meeting, which focused on the results of the STI and the Proposed Plan for remedial action.

Residents expressed concern at the October 1990 public meeting about potential health effects from the use of contaminated groundwater. Although residences have been monitored since 1981, and bottled water, and subsequently home carbon treatment units, have been supplied to residents with contaminated well water, some residents remain concerned. Residents are also concerned about the declining property value of their homes, however, this concern seems to derive more from the Pagel's Pit Landfill than the Acme Solvents site. Residents also expressed frustration at the Government's apparent inability to stop the 1986 unauthorized PRP cleanup and in the length of time that has passed from initiation of a remedial investigation/feasibility study (RI/FS) in 1984 to USEPA's proposal for a comprehensive site cleanup in 1990.

Residents affected by the proposed water main were invited to a small group meeting prior to the full public meeting to discuss their concerns. They were mainly concerned that the operators of Pagel's Pit Landfill would have influence over the use of their well, and might not provide a clean or reliable water supply.

III. SUMMARY OF SIGNIFICANT COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND USEPA RESPONSES

The comments are organized into the following categories:

A. Summary of comments from the local community
   1. Comments from residents
   2. Comments from Winnebago Reclamation Landfill

B. Summary of comments from Potentially Responsible Parties

The comments are paraphrased in order to effectively summarize them in this document. The reader is referred to the public meeting transcript and written comments available at the public repository for further information.

A. SUMMARY OF COMMENTS FROM THE LOCAL COMMUNITY

1. COMMENTS FROM RESIDENTS

COMMENT: The residences on Edson Road directly south of the site should be hooked up to the water main. Since the contamination comes close to these areas, residents are concerned that the contaminants will eventually reach these wells.

RESPONSE: The final decision regarding which residents will be hooked up to the water main will be made during the design phase and additional sampling will be performed to ensure that all residents with contaminated or potentially contaminated water at levels exceeding those set forth in the ROD are hooked up. Residents who are not hooked up will be protected from migration of contaminants by the pump and treat system, which will draw contaminated water away from residences.

COMMENT: How can USEPA and IEPA be sure that the Pagel's Pit water supply will not become contaminated? Pagel's Pit operators have purchased a farm to the north of the Landfill. What will happen if they expand the landfill to the north and contaminate the water supply well?

RESPONSE: Water from the Pagel's Pit well has been tested in the past and has been found to be uncontaminated. However, USEPA and IEPA intend to negotiate an agreement with Potentially Responsible Parties (PRPs) which contains standards for the quality of the water provided to residents. The PRPs will be required to sample the well water periodically to ensure these

standards are being met. If the water from the Pagel's Pit well does not meet these standards, the PRPs must drill a new well away from contaminated areas which meets these standards. If the Agencies' enforcement actions are unsuccessful, they will fund the construction of the water main and make sure it meets these standards.

COMMENT: The operators of Rockford Blacktop Quarry (north of Acme Solvents) are blasting the fractured bedrock. This could be causing further groundwater contamination. The Federal or State EPA should check on this.

RESPONSE: Some of the wells drilled and sampled for the Acme Solvents investigation are near the Rockford Blacktop Quarry. Analyses of samples collected from these wells to date have not shown any groundwater contamination in this area. USEPA and IEPA will try to make further inquiry about the extent of blasting during the design phase to see if these activities may affect the groundwater, but the information we have collected to date indicates that this is unlikely.

COMMENT: USEPA and IEPA should purchase the houses in the area, rather than spending money remediating the Acme Solvents site.

RESPONSE: CERCLA requires that permanent solutions and treatment technologies be used to remediate Superfund sites to the maximum extent practicable. If the Agencies purchased homes rather than treating the contaminants at the site, contaminants would continue to leach to the Galena-Platteville aquifer and render a large portion of the aquifer unusable. USEPA's goal as stated in the NCP is to restore aquifers to their beneficial uses in a reasonable timeframe, as well as to prevent harm to future users of or trespassers on the site due to contact with hazardous substances. Purchase of the homes surrounding the site, as an alternative to remediating the site, would not meet these goals.

USEPA's policy is to purchase property as part of a Superfund remedial action only when the property is needed to perform the cleanup or when inhabitants cannot be adequately protected from site contaminants by other means. In this case, inhabitants are protected from contaminated groundwater through home carbon treatment units as an interim measure, and an alternate water supply as a final measure, making the purchase of these homes unnecessary.

COMMENT: USEPA and IEPA appear to be ineffective in addressing the problems associated with the Acme Solvents site. They have done little to clean up the site since it was discovered and were ineffective in stopping the 1986 unauthorized PRP cleanup.

RESPONSE: The 1986 unauthorized PRP cleanup was an unprecedented situation in the history of Superfund and as a result, a new

provision was written into the Superfund law to prevent such a situation from occurring in the future. The Agencies' dispute with the PRPs was over the disposal of the contaminated materials. However, the PRPs' action did result in a net benefit to residents in that approximately 40,000 tons, or 90 percent of the highly contaminated soils and sludges were removed from the site. These materials were not transported to Pagel's Pit Landfill, as some residents suspect. They were transported to permitted hazardous waste landfills in Indiana and Alabama.
In addition, the Agencies have, since 1981, ensured that residents received bottled water, then home carbon treatment units, to protect them from contaminated groundwater. The Agencies have also provided regular monitoring to ensure that no additional residential wells have become contaminated. Thus, a large portion of the needed remediation of the Acme Solvents site has already been accomplished and the Agencies have assured that residents have been protected from site contaminants in groundwater since 1981.

COMMENT: Someone should monitor health problems in the area.

RESPONSE: The Agency for Toxic Substances and Disease Registry (ATSDR) has established a national exposure registry for persons exposed to trichloroethene (a contaminant of concern at Acme Solvents) in drinking water. Currently, residents in Michigan, Indiana and Illinois are enrolled. There are no plans to expand the registry at this time, however, if the registry is expanded in the future, residents around the Acme site could be considered.

COMMENT: Residents near the site observed that during the 1986 cleanup the trucks were not lined to prevent leakage of contaminants out of or onto the trucks.

RESPONSE: The persons responsible for the 1986 cleanup have stated that the trucks used were properly decontaminated. Any future cleanups at the site will be done with USEPA and IEPA oversight to ensure that trucks are lined and/or decontaminated.

2. COMMENTS FROM WINNEBAGO RECLAMATION SERVICE, INC.

COMMENT: The STI Report for the Acme Solvents site concludes that there are two separate sources of volatile organic chemicals (VOCs) in the area's groundwater: (1) unremediated soil/sludge located at the Acme Solvents site; and (2) an unidentified source located along the eastern boundary of the Winnebago Reclamation Landfill (WRL), or Pagel's Pit, Superfund site, which is located immediately to the west and downgradient of the Acme Solvents site. That finding is not based on empirical evidence but on interpretation of chemical distributions in groundwater.

Winnebago Reclamation Services (WRS) submits that the most plausible explanation for the presence of VOC contamination at

that location is that it migrated with the groundwater from the Acme Solvents site. Acme Solvents disposed of hazardous materials, including VOCs, in unlined lagoons having direct access to groundwater. The bedrock underlying the site is highly fractured and the hazardous substances were disposed of in an area of groundwater recharge. Seasonal variations in recharge and the change in source concentrations due to various remedial activities, and the complex behavior and flow of dense solvents in a fractured medium make it virtually impossible to pinpoint the source of VOCs without any speculation. However, WRS feels that the Acme Solvents site is a more plausible source than WRL. The detection of VOCs in two of three additional wells drilled on the Acme site and between the two sites further supports WRS's claim that the source of contamination at the eastern boundary of the Pagel's Pit site is Acme Solvents. In fact, the evidence suggests that Acme Solvents is the sole source of VOCs in groundwater in that area.

RESPONSE: USEPA has stated in several conversations and correspondence with both Acme Solvents and Pagel's Pit PRPs that additional studies are needed to determine the source of contamination at the eastern boundary of the Pagel's Pit site. Review of the Acme Solvents STI Report and the Pagel's Pit draft RI report shows that arguments can be made for a source at the Acme site or at the eastern boundary of the landfill. Acme Solvents PRPs have been cooperative in drilling and sampling additional wells in an effort to determine the source of contamination. The Acme Solvents PRP's Northwest Area Investigation report, available as part of the Administrative Record for the site, argues that the presence of VOCs in the additional wells does not indicate that Acme Solvents is the source of the contamination at the landfill.

USEPA and IEPA are currently evaluating the additional information provided by the Acme Solvents PRPs in an effort to determine the source of this contamination. However, Pagel's Pit PRPs have been quite uncooperative in refusing to perform additional studies as requested by USEPA. It has been and will continue to be quite difficult to evaluate WRS's claim that Pagel's Pit is not the source of this contamination without the cooperation of Pagel's Pit PRPs in performing additional studies.

COMMENT: WRS expects the Acme Solvents site PRPs to fund any remedial measures that may be required in the areas of the WRL site attributable to substances originating at the Acme Solvents site, including but not limited to the VOC plume which extends under the WRL site. Any Covenant Not to Sue in connection with any Consent Decree for work performed at the Acme Solvents site must therefore be strictly limited to work actually done, and limited to the area where the work is done, and must not purport to release any claims for remedial action in areas outside those actually fully remediated by the Acme Solvents PRPs.

RESPONSE: Since this ROD specifically excludes the contamination at the eastern boundary of Pagel's Pit Landfill, USEPA and IEPA anticipate that this area of contamination will also be excluded from Consent Decree negotiations. USEPA and IEPA do not intend to relaease Acme Solvents PRPs (or Pagel's Pit PRPs) from any potential liability associated with this area of groundwater contamination at this time.

COMMENT: WRS urges that the remedy chosen in the Record of Decision (ROD) regarding the Acme Solvents site be no less stringent than that proposed in EPA's Proposed Plan for the site. The WRL site is downgradient of Acme Solvents. If the WRL site were not a waste disposal facility, the remedies selected at Acme Solvents would undoubtedly attempt to eliminate any downgradient contamination attributable to Acme Solvents as promptly and as thoroughly as possible. Instead, however, the Proposed Plan indicates that because the WRL site is a landfill, additional study and delay in implementing remedying the impact of Acme Solvent on WRS are acceptable. The Acme Solvents remedy should be implemented to address the entire area impacted by the Acme Solvents site, including the area southeast of the WRL facility.

RESPONSE: The delay in implementation of a remedial action at the southeast corner of Pagel's Pit is not because the area in question is a landfill. This delay is solely due to the fact that additional time is needed to better identify the sources of this contamination. In fact, Pagel's Pit PRPs have played a large part in causing this delay by refusing to perform additional studies necessary to determine the source.

COMMENT: WRL urges that the design and implementation of remedies at Acme Solvents be coordinated with ongoing investigation or remediation at the WRL and with the ongoing operation of the WRL. The well locations, recharge points, access controls, water supplies, ongoing monitoring, pilot tests, and virtually every other element of the Acme Solvents remedy will be more effective if open cooperation and communication with WRS (and the Pagels Landfill Steering Committee) are encouraged by your agency.

RESPONSE: USEPA and IEPA agree with this comment and continue to encourage cooperation and communication between Acme Solvents PRPs, Pagel's Pit PRPs, and the Agencies regarding matters that affect both sites.

B. COMMENTS FROM POTENTIALLY RESPONSIBLE PARTIES

COMMENT: Many former customers of Acme have not received a copy of the Proposed Plan for remedial action and have not been participating in discussions with the Agencies regarding the plan. USEPA appears to be targeting for enforcement actions only a small portion of the firms responsible for site contamination. These

companies are being asked to shoulder a disproportionately large share of the response costs.

RESPONSE: USEPA intends to send Special Notice Letters informing PRPs of the start of negotiations for implementation of the remedial action to all known PRPs. USEPA sent a General Notice of Potential Liability to approximately 65 PRPs on June 8, 1990 and sent the Proposed Plan on October 5, 1990 to the same group. The current PRP service list for Acme Solvents is attached to the June 8, 1990 letter. Several PRPs did not receive this letter or the Proposed Plan because USEPA has no, incorrect, or incomplete addresses. USEPA is currently attempting to update this information and welcomes information from the public or PRP community which would allow us to supplement our PRP list.

COMMENT: The Acme Solvents Settlors Coalition generally endorses USEPA's identification of preferred alternatives for cleaning up the Acme site. In particular, the Coalition believes that the bifurcated approach identified by USEPA for cleaning up source areas in Phase I and contaminated soils, bedrock and groundwater in Phase II is appropriate. The Coalition agrees, in general, that the preferred response alternatives identified by USEPA would protect human health and the environment, would comply with ARARs, would be cost effective, and would use permanent solutions and alternative treatment technologies to the maximum extent practical.

RESPONSE: No response necessary.

COMMENT: USEPA has employed a residential future use scenario in arriving at a groundwater cleanup level of 10^{-5} lifetime excess cancer risk (LECR). The Settlors Coalition remains convinced that employment of a non-residential future use scenario would be more appropriate. Given such a scenario, coupled with institutional controls, alternative water supply, and a RCRA cap, groundwater clean-up levels of 10^{-4} (or something between 10^{-4} and 10^{-5}) LECR would be justified, sufficiently protective, and more cost effective. Maximum contaminant levels (MCLs) should be used as the clean-up level for substances having MCLs.

RESPONSE: USEPA and IEPA disagree that a residential future-use scenario is inappropriate for the Acme Solvents site. The residential future-use scenario is consistent with current land use near the site and existing zoning restrictions, which allow for one single-family home per 40 acres. In addition, the NCP states that "groundwater that is not currently a drinking water source, but is potentially a drinking water source in the future would be protected to levels appropriate to use as a drinking water source." There are residential wells drawing from the Galena-Plattville aquifer in and near the contamination plume, making the aquifer unquestionably a current and potential source of drinking water.

Aside from the residential use issue, USEPA and IEPA have considered the comment that MCLs set under the SDWA should be used to set cleanup levels in groundwater. Because the concentrations of many of the contaminants of concern at the 10^{-5} LECR are well below analytical detection levels, and because of the technical difficulties associated with aquifer remediation in fractured bedrock, the Agencies have determined that this comment has technical merit. Accordingly, aquifer remediation goals have been set at 10^{-5} LECR (or a hazard index of 1) for 1,1-DCE and contaminants without MCLs, and MCLs, proposed MCLs, or non-zero MCLGs for contaminants with MCLs and MCLGs.

COMMENT: The preferred alternative for source areas (Phase I) calls for residuals left over from low-temperature thermal stripping (LTTS) to be solidified if TCLP standards for metals are exceeded, then covered by a RCRA cap (if landfilled on-site). Solidification and capping would be unnecessarily redundant, not optimally cost-effective, and not required under the NCP. Solidification or capping of residuals would be sufficiently protective, cost-effective and otherwise consistent with the NCP.

RESPONSE: The wording of the ROD has been changed slightly from that of the Proposed Plan. The Proposed Plan required that metals in residuals landfilled on-site meet both RCRA TCLP standards and RCRA Treatability Variance standards for soil and debris. Since these two sets of standards are very similar for metals, and the Treatability Variance standards are frequently lower than TCLP standard, USEPA has determined that requiring that only Treatability Variance standards be met will be sufficiently protective.

Attainment of Treatability Variance standards is required under RCRA Land Disposal Restrictions (LDRs, 40 CFR Part 268). These regulations set treatment standards that must be achieved before any land disposal of hazardous substances. Since either on-site or off-site disposal of LTTS residuals constitutes "land disposal", Treatability Variance standards must be met in order to comply with RCRA ARARs. These standards are required under the NCP and CERCLA, as they both require that all ARARs be met, unless a waiver is obtained.

Also, since the ROD does not require that a liner be constructed under materials landfilled on-site, and no cap is 100% effective, these standards and the additional standards provided in the ROD will provide further assurance that contaminants will not leach to groundwater.

COMMENT: Implementation of many of the particulars of the preferred alternatives will depend upon the results of treatability studies, pilot testing, and selection of appropriate standards and parameters that will become known only in the course

of remedial design. Accordingly, the Record of Decision should not attempt to answer questions that are more appropriately addressed in the remedial design phase of the clean-up. In particular:

a. The disposition of residuals from treated source materials depends on the result of TCLP testing. Whether source material residuals are to be solidified, landfilled on site or landfilled off-site should not be specified in the ROD.

b. The cleanup levels applicable to the delineation of source materials, and selection of a method(s) for measuring such cleanup levels should be left to remedial design.

c. Delineation of areas to be covered by a RCRA cap depends upon the disposition of source material residuals and efficacy of soil and bedrock vapor extraction, among other factors, and should be left to the remedial design.

d. Where and how the efficacy of soil and bedrock vapor extraction is measured depends on pilot testing, delineation of areas to be capped, and potential for groundwater contamination, among other factors, and should be left to remedial design. The Settlors Coalition recognizes that USEPA believes the efficacy of soil vapor extraction should be measured in the soil matrix (as opposed to the off-gas stream). However, the point of measurement should not be specified in the ROD, but would be better determined in the remedial design and as the remedial action progresses.

e. The need for and methods of off-gas treatment, and disposal of residuals from off-gas treatment, from low temperature thermal stripping of source materials and soil/bedrock vapor extraction should be left to the remedial design.

f. The source of a permanent water supply for nearby residences should be left to the remedial design.

RESPONSE: Responses are provided in the same order as the comments above:

a. The ROD allows for on- or off-site disposal of treatment residuals.

b. USEPA and IEPA disagree with this comment. Cleanup levels for source materials have been specified in the ROD in order to ensure an adequate cleanup of the source areas.

c. USEPA and IEPA agree that further study is needed to delineate areas to be covered by a RCRA cap. These areas are not specified in the ROD.

d. A cleanup standard set in the soil matrix is necessary to ensure that the soil vapor extraction is adequately designed and implemented to protect human health and the environment by preventing further migration of VOCs to groundwater. USEPA and IEPA do not favor measurement of VOCs in the off-gas stream because it provides little information about the concentrations remaining in the soils and available to leach to groundwater. USEPA and IEPA recognize, however, the difficulty in setting and achieving cleanup standards in soil for vapor extraction and have set two cleanup standards, a less stringent standard, which will require a RCRA cap, and more stringent standard, which will not require a RCRA cap.

e. The ROD does not specify whether or what type of off-gas treatment will be required for any of the treatment technologies. It does state minimum air emissions standards which may not be exceeded during the remedial action, in order to ensure that the remedial action does not result in an increased health risk to downwind residents and workers. In addition all Federal, State, and local ARARs regulating air emissions must be met. Off-gas treatment will be required if any of these standards may be exceeded during the remedial action.

f. The ROD provides two options for an alternate water supply well: the Pagel's Pit water supply well or a new well drilled into the St. Peter Sandstone upgradient of site contamination.

COMMENT: The Acme Solvents PRP Steering Committee has requested that 129 documents be included in the Administrative Record for the Acme Solvents site (a complete index of these documents is included in the Administrative Record).

RESPONSE: USEPA, consistent with the guidance set forth in the NCP, has reviewed the documents submitted by the PRPs. The NCP counsels, "The lead agency shall establish an administrative record that contains the documents that form the basis for the selection of a response action...." It goes on to state, "The lead agency is not required to include documents in the administrative record file which do not form a basis for the selection of the response action. Such documents include, but are not limited to, draft documents, internal memoranda, and day-to-day notes of staff unless such documents contain information that forms the basis of selection of the response action and the information is not included in any other document in the administrative record file."

Many of the docments submitted for inclusion were draft documents which were not relied upon for the selection of a remedy. Other documents contained information which could be found in documents already contained in the Administrative Record. Many of the

documents included in the index are already in the Administrative Record (see Appendix A.) Still other documents chronicled events which were irrelevant to the process by which the remedy was selected.

Some documents, however, were relevant to the remedy selection process and, to date, had not been included in the Administrative Record. These documents were added to the Administrative Record. Specifically, the following documents were added:

September 1, 1989 letter to Allison Hiltner from Fred Marinelli re: additional aquifer tests.

August 11, 1990 Northwest Area Investigation Final Report by Harding Lawson Associates.

August 20, 1990 letter to Allison Hiltner from Brian LaFlamme re: residential water supply analytical data.

APPENDIX II

SCOPE OF WORK

SCOPE OF WORK FOR REMEDIAL DESIGN/REMEDIAL ACTION
ACME SOLVENT RECLAIMING, INC.
WINNEBAGO COUNTY, ILLINOIS

I. PURPOSE

The purpose of this Remedial Action is to fully implement the Record of Decision (ROD) relating to the Acme Solvent Reclaiming, Inc. Superfund site (Site, or Acme site), issued by the United States Environmental Protection Agency (U.S. EPA) on December 31, 1990 in concurrence with the Illinois Environmental Protection Agency (IEPA). Settling Defendants are responsible for designing and fully implementing the Remedial Action at the Site in a manner fully consistent with the National Contingency Plan (NCP), the U.S. EPA Superfund Remedial Design and Remedial Action Guidance, the ROD, the Remedial Design/Remedial Action (RD/RA) Work Plan, as approved or modified by U.S. EPA, any additional guidance provided by U.S. EPA, and this Scope of Work (SOW).

II. DESCRIPTION OF THE REMEDIAL ACTION AND CLEANUP AND PERFORMANCE STANDARDS

Settling Defendants shall perform the Remedial Design and Remedial Action set forth in the ROD, and further described in the Engineering Evaluation/Cost Analysis (EE/CA) and Remedial Action Alternatives Evaluation (RAAE) for the Acme Solvent Reclaiming, Inc. site. The remedy shall be designed, performed, and maintained to achieve the Performance Standards and Cleanup Standards set forth below. Cleanup Standards have been set for the site based on the Endangerment Assessment (EA) developed for the Site, U.S. EPA's Risk Assessment Guidance for Superfund (RAGS), and Federal, State, and local regulations.

A. IDENTIFICATION OF CONTAMINATED SOILS AND SLUDGES FOR LTTS TREATMENT

Settling Defendants shall fully identify the horizontal and vertical extent of soils/sludges contaminated at levels exceeding any of the following Cleanup Standards in the waste disposal areas described in the ROD:

- a field photoionization device (PID) reading of 10 ppm;
- 10 ppm PCBs;
- RCRA TCLP standards for metals.

Settling Defendants may utilize a procedure which uses 1) field screening during excavation for identification of soils/sludges to be excavated, and 2) confirmational sampling and analysis after excavation to verify removal of all soils/sludges contaminated at levels exceeding the Cleanup Standards set forth above, provided they submit to U.S. EPA for approval a plan detailing such a procedure.

B. TREATMENT OF CONTAMINATED SOILS AND SLUDGES

Settling Defendants shall excavate and treat all soils and sludges in the waste disposal areas described in the ROD which are contaminated at levels exceeding any of the Cleanup Standards set forth in Section II A. Settling Defendants shall treat soils and sludges containing contaminants exceeding the Cleanup Standards for organic contaminants by low temperature thermal stripping (LTTS) followed by solidification/stabilization (S/S) (if necessary). Settling Defendants shall treat by S/S soils and sludges containing contaminants at levels below Cleanup Standards for organic contaminants but exceeding Cleanup Standards for metals. Settling Defendants shall attain the levels and standards set forth below:

> Residuals from the LTTS process shall, at a minimum, meet RCRA Treatability Variance Standards for soil and debris, as set forth in U.S. EPA OSWER Directive No. 9347.3-06FS and Table 7 of the ROD. Residuals shall be further treated by S/S, if necessary, to meet these standards.
>
> If Settling Defendants elect to landfill LTTS residuals on-site, such residuals must also meet the VOC Cleanup Standards set forth in Table 9 of the ROD. In addition, PCBs shall be treated to 10 ppm.
>
> Air emissions shall not exceed the standards set forth in Section II J of this SOW.
>
> In addition to the standards above, all materials resulting from the treatment process shall be handled in accordance with State and Federal RCRA regulations.

Settling Defendants shall perform treatability tests designed to determine that LTTS, followed by S/S (if necessary), can achieve the levels set forth above. Settling Defendants may only use LTTS units having the ability to remove PCBs to levels meeting the PCB Cleanup Standard, and shall provide to U.S. EPA data demonstrating that ability. If, in U.S. EPA's determination, treatability tests show that soils and sludges can be treated to achieve the standards set forth above, Settling Defendants shall design, construct, and operate a LTTS system, followed by S/S, if necessary to meet the RCRA Treatability Variance Standards for soil and debris. The LTTS system shall not be demobilized until U.S. EPA determines that all soils/sludges contaminated at levels exceeding Cleanup Standards for organic contaminants have been removed and treated.

C. TREATMENT OF TANK CONTENTS AND DISPOSAL OF TANKS

Settling Defendants shall dispose of the contents of all tanks remaining onsite at an off-site U.S. EPA-approved RCRA- and TSCA-

permitted incinerator which meets the requirements set forth in CERCLA Section 121(d)(3). The tanks themselves shall be landfilled in a U.S. EPA-approved RCRA Subtitle C compliant landfill which meets the requirements set forth in CERCLA Section 121(d)(3). Subject to approval by U.S. EPA, Settling Defendants may utilize an alternative method to decontaminate and dispose of the tanks.

D. PROVISION OF AN ALTERNATE WATER SUPPLY

Settling Defendants shall construct a water main in compliance with all Federal, State and local regulations, which they shall use to provide potable water to all "eligible" locations. "Eligible" locations shall be as follows: 1) any and all locations where well water contamination levels are above the Water Supply Standards set forth below; 2) any and all additional locations which U.S. EPA designates, based on its determination that they may exceed Water Supply Standards in the future, except locations which do not exist at the time of the final design submittal.

At a minimum, Settling Defendants shall sample the following locations for U.S. EPA Contract Laboratory Program's (CLP's) Target Compound List/Target Analyte List (TCL/TAL) contaminants to determine eligibility for an alternate water supply:

1. 8102 Lindenwood Road
2. 8133 Lindenwood Road
3. 8200 Lindenwood Road (Rockford Gun and Skeet Club)
4. 8554 Lindenwood Road
5. 8630 Lindenwood Road
6. 8800 Lindenwood Road
7. 8812 Lindenwood Road
8. 8900 Lindenwood Road
9. 8929 Lindenwood Road
10. 8980 Lindenwood Road
11. 3262 Edson Road
12. 3306 Edson Road
13. 3398 Edson Road
14. 3434 Edson Road
15. 3438 Edson Road

Water Supply Standards

Water Supply Standards are as follows: the water must not contain contaminants at levels exceeding a cumulative carcinogenic risk of 1×10^{-5}, and must meet any and all Maximum Contaminant Levels (MCL) or non-zero Maximum Contaminant Level Goals (MCLG) set under the Safe Drinking Water Act. Settling Defendants shall follow the method of calculation of cumulative carcinogenic risk provided in RAGS and the Acme Solvents EA. To

be approved by U.S. EPA, any proposed source of the alternate water supply must initially meet these standards.

Source of the Alternate Water Supply

The source of the alternate water supply is subject to U.S. EPA approval. Settling Defendants may use the Pagel's Pit water supply well for the alternate water supply, provided its owner consents, and that the water meets Water Supply Standards. If the Pagel's Pit well is not used, Settling Defendants shall drill a new water supply well upgradient from and outside of groundwater contamination areas into the St. Peter Sandstone; the well water must meet Water Supply Standards.

Operation and Maintenance of the Alternate Water Supply

The well and all associated piping shall have sufficient capacity to adequately supply all eligible locations and to meet Federal, State, and local regulations. The water supply must be tested at least annually and shall not contain contaminants at levels exceeding any Federal or State standard for drinking water, including Maximum Contaminant Levels (MCLs) and standards set forth in the Illinois Rules and Regulations for Public Water Supplies. Residents shall not be charged any fees whatsoever, provided, however, that if and when an alternative source of potable water acceptable to U.S. EPA becomes available, Settling Defendants may thereafter charge reasonable fees (as determined by U.S. EPA) for providing water under this section. If, for any reason, the water supply required by this section must be interrupted, Settling Defendants shall provide potable water to residents until the water supply is restored. Such restoration shall take place at the earliest practicable time.

E. FENCE INSTALLATION

Settling Defendants shall construct and maintain a chain link fence around the perimeter of the Acme property boundary, as shown on Figure 1 of the ROD. The fence shall be no lower than six feet high and contain no fewer than three strands of barbed wire. Warning signs advising of hazardous substances in soils which pose a direct contact threat shall be posted at 200 foot intervals along the fence and at the gate. The purpose of the fence is to protect the equipment from vandalism and to keep people and animals away from the site.

F. IDENTIFICATION OF CONTAMINATED SOILS, BEDROCK GAS AND GROUNDWATER

Settling Defendants shall perform sufficient additional sampling to identify the horizontal and vertical extent of groundwater contamination and any soil contamination remaining after completion of the tasks set forth in Sections II A and B above at

levels exceeding Cleanup Standards set forth in Sections II G, H, and I below, in order to design all groundwater and additional soil treatment systems and to designate areas to be consolidated and capped.

G. GROUNDWATER EXTRACTION AND TREATMENT

Settling Defendants shall design, construct, and operate a groundwater extraction and treatment system in order to treat groundwater contaminated at levels exceeding the Cleanup Standards set forth below. Such groundwater shall be extracted and treated by air stripping followed by carbon treatment, if necessary (or an equivalent technology, subject to U.S. EPA approval). Settling Defendants shall meet all conditions and limitations imposed by U.S. EPA and/or IEPA on discharge of treated groundwater into surface waters.

If groundwater monitoring (conducted pursuant to Section II K herein) indicates that contaminants in groundwater are not being reduced at a rate sufficient to meet remediation times set forth in Section IX of the ROD, Settling Defendants shall submit to U.S. EPA for approval a plan for modification of the groundwater extraction and treatment system. Such modifications may include, without restriction, installing and operating additional extraction wells, increasing the pumping rate, alternating pumping of wells to eliminate stagnation points, or pulsed pumping to allow for aquifer equilibration and to encourage adsorbed contaminants to partition into groundwater. Settling Defendants shall modify and operate the system in accordance with the approved plan.

Air emissions from the groundwater treatment system shall not exceed the standards set forth in Section II J.

Cleanup Standards

The groundwater extraction system shall capture all groundwater within the area of attainment (as defined below) contaminated at levels exceeding the groundwater Cleanup Standards set forth in Table 11 of the ROD. In addition, with respect to contaminants, if any, not set forth in Table 11 of the ROD, the system shall capture groundwater contaminated at levels exceeding: 1) any MCL or non-zero MCLG; 2)a cumulative carcinogenic risk of 1 x 10^{-5}; or 3)a cumulative Hazard Index of 1 (for non-carcinogens).

The cumulative carcinogenic risk and hazard index shall be calculated using the methods set forth in RAGS.

Petition for Alternate Cleanup Standards

If, after full operation of the groundwater extraction and

treatment system for a period of at least five (5) years, and operation of the system following implementation of any and all modifications required by U.S. EPA for at least three (3) years, Settling Defendants believe that it is technically impracticable to achieve the Cleanup Standards set forth above, then Settling Defendants may petition to U.S. EPA to modify the Cleanup Standards, based on a demonstration, in accordance with the provisions of Section 121(d)(4)(C) of CERCLA and paragraph 12.c. of the Consent Decree, that compliance with the Cleanup Standards is technically impracticable from an engineering perspective.

Area of Attainment

The Area of Attainment for groundwater Cleanup Standards shall include all areas outside the site boundary where contamination levels exceed such Cleanup Standards, except the area generally defined by monitoring wells G109, G110, G111, G113, G114, B12, and B13, as shown in the Acme Solvents STI report.

Shutdown of the Extraction and Treatment System

Settling Defendants may petition to U.S. EPA for approval to shut down the groundwater extraction and treatment system only after three (3) consecutive years of attainment of the Cleanup Standards (or Alternate Cleanup Standards) set forth below throughout the Area of Attainment. Notwithstanding such approval, if groundwater monitoring indicates that contaminant concentrations have increased above Cleanup Standards (or Alternate Cleanup Standards) after shutdown of the treatment system, Settling Defendants shall reactivate the groundwater extraction and treatment system.

U.S. EPA may require Settling Defendants to continue full or partial operation of the extraction and treatment system after Alternate Cleanup Standards are achieved, if U.S. EPA determines that hydraulic containment to prevent the migration of contaminants exceeding the Cleanup Standards set forth above is necessary to protect human health and the environment.

H. SOIL/BEDROCK VAPOR EXTRACTION

Settling Defendants shall construct and operate a soil vapor extraction (SVE) system, and shall ensure that no soils remaining after completion of the tasks set forth in Sections II A and B above are contaminated at levels exceeding the VOC Cleanup Standards set forth in Table 9 of the ROD.

Settling Defendants shall design and conduct a pilot test in the unsaturated portion of the bedrock in order to determine the feasibility of and design parameters for a bedrock vapor extraction (BVE) system. Settling Defendants shall construct and operate a full-scale BVE system under waste disposal areas, as

described in the ROD, in order to reduce VOC concentrations in bedrock gas, if required by U.S. EPA after review of pilot test data.

Settling Defendants shall present performance criteria and describe the design of the BVE pilot test in the RD/RA Work Plan submitted for U.S. EPA approval. BVE pilot testing shall be conducted in two stages. Parameters to be tested in the first stage of the BVE pilot test shall include, but not be limited to, the following:

1. Concentrations and locations of non-methane volatile organic compounds (NMVOCs) in bedrock gas.

2. Vacuum required to move air through the unsaturated bedrock to a test bedrock gas extraction well(s).

3. Flow rate that can be sustained at a test bedrock gas extraction well(s).

4. Concentration of NMVOCs removed from a test bedrock gas extraction well(s) as a function of time and depth in bedrock.

5. Bedrock characteristics and other parameters necessary to evaluate the feasibility of, and if appropriate, design the BVE system, including but not limited to air permeability, porosity, moisture content, storage, and fracture spacing, volume, and density.

Settling Defendants shall submit to U.S. EPA for review and approval a report of the results of the first stage of the pilot test, including an evaluation of the feasibility of full-scale BVE based on results of the first stage, and the necessity of a second stage pilot test. If U.S. EPA determines that the first stage of pilot testing indicates that a BVE system is potentially feasible, Settling Defendants shall conduct the second stage of pilot testing.

The second stage of pilot testing, if conducted, shall consist of an extended pumping test to evaluate the feasibility of, and determine design parameters for, a full-scale BVE system. The second stage of the pilot test shall include, but not be limited to, monitoring probes at various depths and radial distances from the initial bedrock gas extraction well(s). Parameters to be tested in the second stage BVE pilot test shall include, but not be limited to, the following:

1. Propagation of the vacuum as a function of distance, depth, and time.

2. Spacing of extraction wells to maximize NMVOC removal.

3. Changes in NMVOC concentration as a function of distance from the test bedrock gas extraction well(s), depth in bedrock, and time.

4. Concentration of NMVOCs in bedrock gas after test extraction and possibly as a result of alternating periods of extraction and quiescence.

If the second stage of pilot testing is conducted, Settling Defendants shall submit to U.S. EPA for review and approval a report of the results, in which they shall evaluate the feasibility of BVE on a full scale, and propose cleanup and performance criteria, as well as a method of measuring attainment of cleanup criteria, for a full-scale BVE system. If U.S. EPA determines, based on review of the results of the pilot testing, that a full-scale BVE system is feasible, Settling Defendants shall install and operate a full-scale BVE system under all former waste disposal areas as defined in the Acme ROD.

Settling Defendants shall treat soil by SVE until soil sampling shows that Cleanup Standards have been attained in VOC-contaminated soils. If U.S. EPA determines that BVE is feasible, Settling Defendants shall treat bedrock gas by BVE until U.S. EPA approved BVE Cleanup Standards (to be proposed by Settling Defendants during Remedial Design) are attained.

If, within three (3) years of shut down of the SVE or BVE system, VOC concentrations increase over time to levels exceeding the Cleanup Standards, U.S. EPA may require reactivation of the soil or bedrock vapor extraction system.

Air emissions from the SVE and BVE (if operated) systems shall not exceed the standards set forth in Section II. J.

I. RCRA SUBTITLE C COMPLIANT CAP

Settling Defendants shall design and construct a multimedia cap (RCRA cap) which shall cover all soils which remain contaminated at levels exceeding the Cleanup Standards set forth below after completion of the tasks set forth in Sections II A, B, and H above. In addition, if BVE is determined not to be feasible, the RCRA cap shall cover all former waste areas, as described in the Acme ROD. The RCRA cap shall be designed and constructed in accordance with Federal and State regulations governing the construction of RCRA Subtitle C caps, and with U.S. EPA's Technical Guidance Document entitled "Final Covers on Hazardous Waste Landfills and Surface Impoundments" (EPA/530-SW-89-047). All residuals from the LTTS treatment process which are landfilled on-site shall also be capped. Soils may be consolidated in order to limit the area to be capped.

Settling Defendants may petition to U.S. EPA to install a 12-inch

soil cover in lieu of the RCRA cap, provided they demonstrate to U.S. EPA's and satisfaction that, at a minimum, all treatment residuals will be landfilled off-site (or delisted), all remaining soils have been treated to levels below the VOC Cleanup Standards for a soil cover set forth below, and bedrock gas has been treated to the levels designated by U.S. EPA. The soil cover shall include a vegetative cover.

Cleanup Standards

Soils with contamination exceeding the following Cleanup Standards shall be consolidated and capped:

bis(2ethylhexyl)phthalate	58 mg/kg
PCBs	1 mg/kg
lead	500 mg/kg
VOCs	Cleanup Standards set forth in Table 9 of the ROD

J. CONTROL OF AIR EMISSIONS

At all times during the performance of the Remedial Action, Settling Defendants shall ensure that air emissions do not exceed a cumulative cancer risk of 1×10^{-5} at the nearest downwind residence and at Rockford Blacktop Quarry, using risk calculation methods set forth in RAGS. In addition, the air emissions shall not exceed any Federal, State, or local regulations. Residuals from air emissions control processes shall be treated and/or disposed of in accordance with RCRA hazardous waste regulations.

K. MONITORING SYSTEMS

Settling Defendants shall design and operate the following monitoring systems: 1) monitoring of residential water supplies to ensure compliance with the standards set forth in Section II D, 2) a RCRA-compliant groundwater monitoring system designed to ensure the groundwater extraction and treatment system is effectively remediating groundwater contamination and that Cleanup Standards are achieved in accordance with Section II G, and to detect any migration of groundwater contamination exceeding Cleanup Standards; 3) soil and bedrock gas monitoring to measure attainment of the Cleanup Standards set forth in Sections II A, B, H, and I above; and 4) an air monitoring system to measure attainment of the air emissions standards set forth in the ROD and in Section II J.

L. DEED AND ACCESS RESTRICTIONS

Settling Defendants shall exercise their best efforts to implement deed and access restrictions to ensure that: the integrity of the RCRA cap (or soil cover, if applicable) is not

compromised; except for construction required by this SOW, no construction or installation of drinking water wells occurs on-site which may increase the likelihood of exposure to remaining contaminants; and there is no interference with the operation and maintenance of treatment and monitoring systems required by this Remedial Action.

III. SCOPE OF REMEDIAL ACTION

Settling Defendants shall design, construct, operate, maintain, and monitor the Remedial Action for the Acme site by performing each of the tasks outlined and described below. All plans and other documents submitted to U.S. EPA pursuant to the CD and this SOW shall be governed by the approval procedures of Paragraph 14 of the Consent Decree.

Task 1: RD/RA Work Plan Development
- A. Site Access and Permitting Plan
- B. Quality Assurance Project Plan
- C. Sampling Plan
- D. Site Safety Plan
- E. Pre-design Studies Plan

Task 2: Pre-Design Studies

Task 3: Remedial Design
- A. Content of Design Documents
- B. Design Phases
- C. Plans to be Submitted with Design Phases
- D. General Requirements for Design

Task 4: Remedial Action
- A. Preconstruction Inspection and Meeting
- B. Construction and Operation
- C. Prefinal Inspection
- D. Final Inspection
- E. Long-Term Operation and Maintenance

Task 5: Schedule and Reporting
- A. Progress Reports
- B. Schedule

TASK 1 - RD/RA WORK PLAN DEVELOPMENT

Settling Defendants shall submit to U.S. EPA for review and approval the RD/RA Work Plan which shall describe how all components of the Remedial Action will be designed, constructed, operated, maintained and monitored. The RD/RA Work Plan shall include the plans listed in A through E below. In addition, the RD/RA Work Plan shall include a description of the qualifications, responsibilities and authorities of all key

personnel and organizations involved with implementation of the RD/RA.

A. SITE ACCESS AND PERMITTING PLAN

The RD/RA Work Plan shall include either documentation that site access agreements have been obtained or a plan for obtaining such agreements prior to initiation of the RD/RA. The agreements must provide for access for the duration of the RD/RA and include allowances for all operation and maintenance considerations in accordance with Section X of the Consent Decree. The RD/RA Work Plan shall also include a comprehensive list of all permits necessary for the performance of the Remedial Action, as well as procedures and schedules for acquiring permits.

B. QUALITY ASSURANCE PROJECT PLAN

Settling Defendants shall develop a site-specific Quality Assurance Project Plan (QAPP), covering all phases of future site work, including sampling analysis required during pre-design studies. The QAPP shall be prepared in accordance with the Consent Decree, U.S. EPA's Interim Guidelines and Specifications for Preparation of Quality Assurance Project Plans (QAMS-005/80) and all other guidance identified by U.S. EPA. Settling Defendants shall meet with U.S. EPA representatives to discuss the contents of the QAPP prior to its submission.

C. SAMPLING PLAN

Settling Defendants shall develop a site-specific plan for all sampling and analysis to be performed during the RD/RA.

D. SITE SAFETY PLAN

Settling Defendants shall develop a site-specific safety plan which is designed to protect on-site personnel and area residents from any and all physical, chemical and other hazards arising during the course of all activities performed during this RD/RA. The safety plan shall follow all U.S. EPA guidance and meet all OSHA requirements set out in 29 C.F.R. 1910.120 (51 FR 45654).

E. PRE-DESIGN STUDIES PLAN

Settling Defendants shall develop a site-specific plan for the pre-design studies described in Task 2 below. All principal personnel involved in the development of the program for pre-design studies shall meet with U.S. EPA representatives prior to submitting this plan in order to discuss program elements including objectives, resources, communication channels, roles.

TASK 2 - PRE-DESIGN STUDIES

Settling Defendants shall perform pre-design studies to supplement the available technical data to provide information necessary to fully implement the Remedial Design and Remedial Action. These pre-design studies shall include, at a minimum:

1. Identification of the extent of soil, groundwater and residential well contamination exceeding the Cleanup Standards set forth in Section II;
2. Treatability studies for LTTS and S/S;
3. Pilot scale studies for bedrock vapor extraction; and
4. Any other testing needed for design purposes.

At the direction of the U.S. EPA, Settling Defendants shall furnish all services for any such studies required, including field work, materials, supplies, plant, labor, equipment, and data interpretation. Sufficient sampling, testing and analysis shall be performed to optimize the required treatment and/or disposal operations and systems.

Settling Defendants shall submit to U.S. EPA and IEPA a final report which includes the results of the pre-design studies, recommendations based on results of the studies, and all data collected during the studies.

TASK 3 - REMEDIAL DESIGN

Settling Defendants shall prepare construction plans and specifications to perform the Remedial Action as described in the ROD and this SOW. Subject to approval by U.S. EPA, Settling Defendants may submit more than one set of design packages reflecting different components of the Remedial Action. All plans and specifications shall be developed in accordance with U.S. EPA's Superfund Remedial Design and Remedial Action Guidance (OSWER Directive No. 9355.0-4A) and shall demonstrate that the Remedial Action will meet all objectives of this SOW and the ROD, including all Performance and Cleanup Standards. Settling Defendants shall meet regularly with U.S. EPA to discuss design issues.

A. CONTENT OF DESIGN DOCUMENTS

Settling Defendants shall develop design plans and specifications, which include, but are not limited to, the following:

1. Discussion of the design strategy and the design basis, including:
   a. Compliance with all applicable or relevant and appropriate requirements; and
   b. Minimization of environmental and human health impacts.

2. Discussion of all significant technical factors including:
   a. Use of currently accepted environmental control measures and technology:
   b. The constructability of the design; and
   c. Use of currently acceptable construction practices and techniques.

3. Description of assumptions made and detailed justification of these assumptions;

4. Discussion of the possible sources of error and references to possible operation and maintenance problems;

5. Detailed drawings of the proposed design including:
   a. Qualitative flow sheets; and
   b. Quantitative flow sheets.

6. Tables listing equipment and specifications;

7. Tables giving material and energy balances;

8. Appendices including:
   a. Sample calculations (one example presented and explained clearly for significant or unique design calculations);
   b. Derivation of equations essential to understanding the report; and
   c. Results of laboratory or field tests.

In addition, the design packages shall contain the plans listed and described in Sections B and C below.

B. DESIGN PHASES

Settling Defendants shall develop and submit to U.S. EPA for approval construction plans and specifications to fully implement the Remedial Action. Settling Defendants shall develop and submit to U.S. EPA for approval the detailed design in four phases, as follows, and as described below: Preliminary Design package (30 percent complete), Intermediate Design (60 percent complete, if required by U.S. EPA), Prefinal Design (95 percent complete) and Final Design (100 percent complete). The following shall also be included in the intermediate, prefinal and final design submittals: a list of the permitting authorities; a list of the required construction/operating permits; an estimate of the time required by the permitting agencies to process the permit application(s); a list of the monitoring and/or compliance testing requirements; and a list of all regulations governing any aspect of the remedial design or remedial action.

1. PRELIMINARY DESIGN

The preliminary design shall sufficiently address the technical requirements of the Remedial Action so as to permit a meaningful review to determine whether the final design will provide for an acceptable Remedial Action.

2. INTERMEDIATE DESIGN

The intermediate design shall adequately address all comments made to the preliminary design and shall include: the first draft of the construction and operation and maintenance (O&M) QAPP and sampling and analysis plan (SAP); a draft O&M plan; the design analysis; and plans and specifications. U.S. EPA may waive the requirement for an intermediate design if it determines that the preliminary design sufficiently addresses the technical requirements of the Remedial Action to provide the basis for an acceptable prefinal design.

3. PREFINAL AND FINAL DESIGNS

The prefinal design shall fully address all comments made to the preceding design submittal. The final design shall fully address all comments made to the prefinal design and shall include reproducible drawings and specifications suitable for bid advertisement. The prefinal and final design packages shall include, at a minimum, the construction and O&M QAPP, SAPs, O&M plan, the design analysis, final construction drawings and specifications, and construction schedule, and cost estimate.

Settling Defendants shall ensure that drawings are consistent with specifications throughout the prefinal and final designs. The final design shall sufficiently address the technical requirements of the Remedial Action so as to permit meaningful review to determine whether the Remedial Action will accomplish the objectives of the ROD and this SOW. Supporting data and documentation shall be provided with the design documents defining the functional aspects of the project. Construction drawings shall reflect organization and clarity. Design analysis and calculations shall be included with the submission.

The cost estimates developed in the EE/CA and RAAE shall be modified to reflect the revised design plans and specifications. The cost estimate shall include both capital and operation and maintenance costs. The final cost estimate shall be submitted with the final design.

C. PLANS TO BE SUBMITTED WITH DESIGN PHASES

Settling Defendants shall submit a draft construction QAPP, SAP and safety plan for Remedial Action with the design phases specified above. Final versions of these plans shall be

submitted prior to the start of construction, in accordance with the construction schedule. The construction QAPP and SAP shall include all sampling necessary to demonstrate that Cleanup and Performance Standards have been achieved. These plans shall include specification of all sample locations, frequency, and parameters to be analyzed and will describe the rationale for their selection. In addition, the following plans shall be submitted in draft form during Remedial Design and in final form during Remedial Action:

1. OPERATION AND MAINTENANCE PLAN

Settling Defendants shall develop and submit to U.S. EPA for approval an Operation and Maintenance (O&M) Plan to provide for the long-term operation, maintenance and monitoring of the RA. The plan shall describe the following:

a. Normal Operation and Maintenance

- Tasks for operation
- Tasks for maintenance
- Optimum treatment conditions
- Schedule

b. Potential Operating Problems

- Potential sources of problems or failure
- Common remedies or alternatives
- Information sources

c. Routine Monitoring and Testing

- Monitoring tasks detailed in the Sampling Plan
- Required laboratory testing detailed in the Sampling Plan
- Required QA/QC to ensure proper system operations
- Daily operating logs and maintenance records

d. Long Term Operation and Maintenance

- Tasks necessary to identify system repairs
- Monitoring and testing results necessary for cap (or cover) repair or other work to maintain the performance standards
- Equipment replacement contingencies
- Daily operating logs, periodic inspection logs and maintenance records
- Responses to problems identified at inspections
- Retention of all laboratory data and testing results
- Mechanism for reporting emergencies
- Schedule reports to U.S.EPA

As part of the O&M Plan, the Settling Defendants shall establish a monitoring program in order to assess whether remedial activities comply with the requirements of the Consent Decree, this SOW and the ROD and whether new or further corrective measures need to be taken at the site.

2. CONSTRUCTION QUALITY ASSURANCE PLAN

Settling Defendants shall develop a construction quality assurance plan which describes, without limitation, the following: responsibility and authority; personnel qualifications; inspection activities; sampling requirements; data management and interpretation; corrective measures; and documentation.

D. GENERAL REQUIREMENTS FOR DESIGN

The technical specifications governing all treatment systems shall include contractor requirements for providing: appropriate service visits by experienced personnel to supervise the installation, adjustment, startup and operation of the system; and appropriate operational procedures training once.

Settling Defendants shall demonstrate that the components of the Remedial Action will comply with Federal, State and local regulations and will, at a minimum, be consistent with, "CERCLA Compliance with Other Environmental Statutes," Appendix to Preamble of the National Oil and Hazardous Substances Pollution Contingency Plan, Final Rule, (55 FR 8666) March 8, 1990. All applicable or relevant and appropriate requirements identified in the ROD EE/CA and RAAE shall be analyzed and incorporated into the design.

Settling Defendants shall obtain, complete, and provide all required applications to the appropriate permitting authority. Copies of all correspondence from permitting agencies which either describe permit requirements or indicate that no permits are necessary, shall be furnished to the U.S. EPA.

TASK 4 - REMEDIAL ACTION

Following U.S. EPA approval of the final design, Settling Defendants shall construct and operate all elements of the Remedial Action in accordance with the approved final design plans, specifications and schedule.

A. PRECONSTRUCTION INSPECTION AND MEETING

Before construction has started, a preconstruction meeting and inspection should be held at the site. The purpose of this inspection and meeting is to identify and resolve any potential problems with the Remedial Action. This meeting and inspection

will involve at a minimum, U.S. EPA and the Settling Defendants' Project Coordinator and Remedial Action Contractors.

B. CONSTRUCTION AND OPERATION

The Settling Defendants shall construct and operate all elements of the approved Remedial Action in accordance with the approved remedial design documents, plans, and schedules.

C. PREFINAL INSPECTION

When Settling Defendants believe that they have completed the construction of the treatment systems and prior to their submission of the Construction Completion Report, a prefinal inspection shall be held at the site. This inspection will include U.S. EPA and the Settling Defendants' Project Coordinator and Remedial Action Contractors.

D. FINAL INSPECTION

If any deficiencies in the Remedial Action construction and operation are identified in the prefinal inspection, the Settling Defendants shall correct the deficiencies prior to the final inspection. This inspection will include U.S. EPA and the Settling Defendants' Project Coordinator and Remedial Action Contractors. If the final inspection demonstrates that no deficiencies in the Remedial Action implementation remain, the Settling Defendants may submit the Construction Completion Report.

E. LONG-TERM OPERATION AND MAINTENANCE

Settling Defendants shall continue to perform long term operation and maintenance of the contained waste residual and excavated areas in accordance with the approved plans, specifications and schedules.

Task 4 - SCHEDULE AND REPORTING

A. PROGRESS REPORTS

Settling Defendants shall, at a minimum, provide U.S. EPA and IEPA with monthly progress reports during the design and construction phases and semi-annual progress reports during operation and maintenance activities. These reports shall :

1. A description of the actions which have been taken towards achieving compliance with the Consent Decree and SOW, and attach copies of appropriate supporting documentation;
2. A description of and estimate of the percentage of the

RD/RA completed, including unresolved delays encountered or anticipated that may affect the project schedule;

3. A summary of all results of sampling, testing, laboratory analysis, and all other data received by Settling Defendants during the course of the work which has passed quality assurance and quality control procedures, as well as copies of daily reports (if requested) and inspection reports;
4. A description of all deviations from the approved work plans, plans, or specifications;
5. A description of all problems or potential problems encountered during the reporting period, and actions being taken to rectify problems;
6. A description of all contacts with representatives of the local community, public interest groups, or state government;
7. A description of any changes in personnel; and,
8. A description of the projected work, including all documents to be submitted during the next reporting period.

B. CONSTRUCTION COMPLETION REPORT

At the completion of the remedial action final inspection Settling Defendants shall submit a Construction Completion Report to U. S. EPA. The report shall certify whether the Remedial Action construction has been completed and is consistent with the design specifications, and whether the components of the Remedial Action are performing adequately. The report shall include, but not be limited to, the following elements:

1. Synopsis of the Remedial Action;
2. Description of any modifications to design plans and specifications and why these were necessary; and
3. Certification that the remedy is operational.

C. SCHEDULE

The Settling Defendants shall submit to U.S.EPA a schedule consistent with Table 1 for the remedial design and remedial action. The schedule shall include specific dates for performance of all Remedial Design and Remedial Action tasks required under the Consent Decree and this Statement of Work, including submittal of all documents for agency review and approval, and planned sampling and monitoring activities.

Design of the Remedial Action tasks set forth in Sections II. A, B, C, D, and E above shall be completed no later than one and one half (1 1/2) years following the lodging of the Consent Decree, and in accordance with the schedule presented in Table 1. Performance of the Remedial Action tasks set forth in Sections

II. A, B, C, D, and E above shall be competed no later than two and one half (2 1/2) years following lodging of the Consent Decree and in accordance with the schedule presented in Table 1 and the final design. U.S. EPA, in its sole discretion, may waive either or both of these deadlines at the request of Settling Defendants. Construction of all remaining portions of the Remedial Action shall be started immediately after the completion of tasks A, B, C, D, and E, unless U.S. EPA approves a later construction start (e.g. RCRA cap construction start may be delayed pending completion of soil/bedrock vapor extraction) and shall be completed in accordance with the schedule approved or modified by U.S. EPA.

Table 1: Project Schedule

Project Deliverables or Tasks	Schedule for Completion
RD/RA Work Plan	60 days after lodging of CD
Revised RD/RA Work Plan	30 days after receipt of EPA comments on RD/RA Work Plan
30% Design Submittal for Treatment of Soil/Sludges (SOW Item B)	90 days after EPA approval of RD/RA Work Plan or as otherwise required by the approved RD/RA Work Plan.
95% Design Submittal for SOW Item B	60 days after receipt of EPA comments on 30% submittal (or 30 days after receipt of comments on 60% submittal, if required)
Final Design Submittal for SOW Item B	14 days after receipt of EPA comments on 95% submittal
Begin Treatment of Soils/Sludges (SOW Item B)	30 days after EPA approval of Final Design or as otherwise required by approved Final Design
Draft Design Specifications for Treatment and Disposal of Tank Contents (SOW Item C)	30 days after EPA approval of RD/RA Work Plan
Final Design Specifications for SOW Item C	14 days after receipt of EPA Comments on Draft Design Specifications
Complete Treatment and Disposal of Tank Contents	60 days after EPA approval of Final Design Specifications or as otherwise required by approved Final Design submittal
30% Design Submittal for Alternate Water Supply (SOW Item D)	45 days after EPA approval of RD/RA Work Plan
95% Design Submittal for SOW Item D	60 days after receipt of EPA comments on 30% submittal (or 30 days after receipt of comments on 60% submittal if required)
Final Design Submittal for SOW Item D	14 days after receipt of EPA comments on 95% submittal

Table 1: (continued)

Project Deliverables or Tasks	Schedule for Completion
Begin Construction of Alternate Water Supply System (SOW Item D)	30 days after EPA approval of Final Design or as otherwise required by approved Final Design Submittal
Draft Design Specifications for Perimeter Fence and Signs (SOW Item E)	30 days after EPA approval of RD/RA Work Plan
Final Design Specifications for SOW Item E	14 days after receipt of EPA comments on Draft Design Specifications
Complete Construction of Perimeter Fence and Signs	90 days after EPA approval of Final Design Specifications as otherwise required by approved Final Design Specification
Identification of Contaminated Soil and Groundwater (SOW Item F)	6 months after EPA approval of RD/RA Work Plan or as otherwise required by approved RD/RA Work Plan
30% Design Submittal for Groundwater Extraction and Treatment System, Soil/Bedrock Vapor Extraction and RCRA Cap (SOW Items G, H, and I)	60 days after completion of SOW Item F
95% Design Submittal for SOW Items G, H, and I	60 days after receipt of EPA comments on 30% submittal (or 30 days after receipt of comments on 60% submittal if required)
Final Design Submittal SOW Items G, H, and I	14 days after receipt of EPA comments on 95% Submittal
Begin Construction of SOW Items G, H, and I	30 days after EPA approval of Final Design or as otherwise required by Final Design